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# **‘Instead of Life in Prison, it Was Life in My Own Skin’: Scope and Limitations of a Week-Long Daily Online Self-Compassionate Writing Intervention for Young Women’s Body Image**

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A thesis submitted in partial fulfillment of the requirements for the Master of Science degree in Psychology

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## Abstract

Self-compassion involves reappraising negative events, accepting uncomfortable emotions, and practicing self-kindness. This thesis examined the effect of cultivating self-compassion via daily self-compassionate writing completed online for one week on stigmatizing and affirming self-perceptions in young undergraduate women. Undergraduate women ( $N = 254$ ) were randomly assigned to one of the three conditions (i.e., self-compassionate writing, attentional-control, wait-list control) and completed measures of trait self-compassion, fear of self-compassion, affirming self-perceptions (i.e., body appreciation and broad conceptualization of beauty), and stigmatizing self-perceptions (i.e., self-objectification and phenomenological body shame) at baseline, post-test, and one-month follow-up. Hypotheses were tested using MANCOVA and a latent growth modelling (LGM) approach. MANCOVA revealed no change across conditions. LGM revealed a significant increase in the slope for self-compassion and a significant decrease in the slope for self-objectification and overidentification across time in the self-compassion condition, but the effects were small. Implications and future directions for self-compassion interventions are discussed.

## Keywords

self-compassion, body image, women, writing, self-stigma, eating disorders

## Summary for Lay Audience

Body image refers to the way a person thinks about, feels, and behaves towards their body. A person can experience negative body image, such as body dissatisfaction or body shame, and/or they can experience positive body image, such as appreciating and respecting their body.

Negative body image is a known precursor of disordered eating and other mental health risks, whereas positive body image can protect and bolster mental health. On average, women tend to report more negative body image than men. Being more compassionate toward oneself may represent an effective way for women to cope with body image-related distress and develop more positive body image. Self-compassion involves responding to oneself with kindness (self-kindness), recognizing that suffering and distress is a shared human experience (common humanity), and accepting one's emotions without judging them (mindfulness). In the domain of body image, researchers have shown that high self-compassion is related to more positive body image and less negative body image. The aim of this thesis was to develop a one-week daily online self-compassionate writing intervention to help young university women better cope with negative body-related experiences. Undergraduate women ( $N = 254$ ) were randomly assigned to one of three conditions: self-compassionate writing, attentional-control writing, or a wait-list control (no writing). Women completed measures of body shame, self-objectification (viewing the body from an outsider's perspective and as an appearance object), body appreciation, broad conceptualization of beauty, self-compassion, and fear of self-compassion at baseline, post-intervention, and one month later. Overall, self-compassion was strongly associated with aspects of both negative and positive body image, but the intervention itself did little to improve positive body image or reduce negative body image. Specifically, the findings indicated that women in the self-compassion condition were less likely to judge their emotions and view their body from

## SELF-COMPASSIONATE WRITING, BODY IMAGE, WOMEN

an outsider's perspective, but these effects were very small. No other effects were observed.

Participants demonstrated engagement with the intervention and fidelity checks confirmed good completion of the writing task. Future research should examine and vary specific features of the online delivery of self-compassionate writing interventions in order to increase the potency of the intervention.

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I would like to dedicate this thesis to every girl and woman who has been made to feel that their body and appearance bear more significance than every other interesting aspect of themselves. Although the journey is never linear, may you come to realize your irrefutable self-worth that is freed from impractical appearance ideals.

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## Chapter 1

### 1 Introduction

Girls and women in Western cultures live and work in environments where their appearance is regularly evaluated, scrutinized, and objectified (Fredrickson & Roberts, 1997; Roberts et al., 2018). Sociocultural models of disordered eating have examined how such environments influence women's body image, that is, the way women think about, feel, and behave towards their bodies (Cash & Pruzinsky, 1990). Specifically, the presence of stigmatizing self-perceptions and beliefs (e.g., self-objectification, body shame), and the absence of affirmative self-perceptions and beliefs (e.g., body appreciation, broad conceptualization of beauty), have been linked to disordered eating and body checking behavior in university women (e.g., Huellemann & Calogero, 2020; Levine & Smolak, 2015; Noll & Fredrickson, 1998; Tylka & Wood-Barcalow, 2015a; Tylka & Wood-Barcalow, 2015b). Although the bulk of body image research has concentrated on understanding and preventing negative body image, less research has focused on positive body image.

Cultivating positive body image is distinct from simply reducing negative body image. Positive body image is a multifaceted construct that involves a protective, grateful, and flexible attitude towards one's body without trying to conform to societal expectations (Tylka & Wood-Barcalow, 2015b). From a theoretical standpoint, self-compassion is an important construct that represents an alternative coping strategy for negative body-related experiences and an opportunity to develop more positive body image (Tylka & Huellemann, 2020). Body image scholars have suggested that the future of body image research depends on equally considering the distinct correlates, predictors, and markers that may promote the development of positive

body image (alongside negative body image) in order to cultivate a well-rounded, healthy stance toward the body and its appearance (Cash & Smolak, 2011; Tylka & Wood-Barcalow, 2015b).

Heeding this call for more research on positive body image, and to further examine potential protective factors against negative body image, I investigated the acute and short-term longitudinal effects of a week-long self-compassion cultivation intervention on body-related stigmatizing and affirming self-perceptions in a sample of undergraduate women. Self-compassion refers to the capacity to be kind to ourselves, to be able to recognize our shared struggles with others, and to be non-judgmental toward ourselves (Neff, 2003b). As such, self-compassion inherently means the absence of self-criticism and self-judgment, and the presence of self-acceptance and gentle self-affirmation. A review of the empirical evidence has supported the protective role of self-compassion for negative and positive body image as well as eating disorder symptomatology, but most of this research has relied on cross-sectional, correlational designs (Braun et al., 2016; Turk & Waller, 2020). More experimental research is needed to garner insight into the causal role of self-compassion in the promotion of positive body image and the prevention of negative body image.

## 1.2 Self-Compassion

Self-compassion is derived from Buddhism, an Eastern religion and philosophy that aims to increase awareness of internal suffering without trying to change or influence the experience in any way, and instead attempting to assign meaning to this experience (Bennett-Goleman, 2001; Brown, 1999). Self-compassion has been conceptualized as both a personality trait and an emotional regulation strategy that can be harnessed to cope with distressing events (Gilbert & Procter, 2006; Neff, 2003b). Specifically, self-compassion involves three interrelated components which describe compassionate self-responding, and three interrelated components

which describe uncompassionate self-responding (Neff et al., 2018). The three compassionate responding components are self-kindness, common humanity, and mindfulness, while the three uncompassionate responding components are self-judgment, isolation, and overidentification.

As defined by Neff (2003a), self-kindness entails responding to oneself with sympathy, kindness, and patience during distressing situations, similar to how a person would react to a close friend telling them that they experienced the same event. The opposite of this component is self-judgment, which involves criticizing and berating oneself during distressing situations. Common humanity involves recognizing that all people have flaws and experience distressing events at some point in their lives. The opposite of this component is isolation, which involves feeling alone, self-pity, and feeling disconnected from others when distressing events occur. Finally, mindfulness involves a heightened awareness of one's emotions without judgment or changing them in any way. The opposite of this component is overidentification, which involves rumination and/or suppressing emotions in response to a distressing event.

Although the Western conceptualization of self-compassion originates from Buddhism (Neff, 2003), there are some theoretical differences between the Western definition of self-compassion and the Buddhist religion that have been debated by Buddhist scholars. While Buddhism emphasizes that the common humanity component of self-compassion represents “oneness” between others and the self, the Western conceptualization emphasizes comparisons with others and fostering connections with them based on those comparisons (Peng & Shen, 2012). There is also evidence that the Self-Compassion Scale (SCS; Neff, 2003) has a different factor structure in samples of Buddhists compared to non-Buddhists (Zeng et al., 2016). For example, Zeng et al. demonstrated that the six-factor structure in the SCS that is normally found in Western samples did not replicate in a Buddhist sample, and the self-kindness and common

humanity components of self-compassion were not associated with better emotional outcomes (Zeng et al., 2016). Thus, while the Western conceptualization of self-compassion is derived from Buddhism and has shown to be associated with a host of psychological benefits, it is important to recognize that this conceptualization of self-compassion may not fully align with Buddhism.

Self-compassion has been studied across a range of domains including psychopathology, general well-being, relationships, academic achievement, and body image (Braun et al., 2016; Macbeth & Gumley, 2012; Neff & Beretvas, 2012; Neff et al., 2005; Neff et al., 2007). Self-compassion is certainly applicable to the study of body image, especially when a person encounters body-related threats (e.g., appearance comparisons, hearing someone make a negative comment about their body). For example, if a person hears someone else make a degrading comment about their body, they could attempt to engage in self-compassion by reacting to their feelings with kindness and understanding (self-kindness), recognize that most societal body ideals are unrealistic and that all bodies have flaws (common humanity), and accept that any emotions that they have are a valid response to hearing someone make an unsolicited comment about their body (mindfulness).

In support of self-compassion's relevance to body image research, there appears to be a robust cross-sectional link between self-compassion and indicators of positive and negative body image (Braun et al., 2016; Turk & Waller, 2020), with self-compassion demonstrating a role as a predictor, moderator, and mediator in several theoretical models of body image (Tylka & Huellemann, 2020). However, in recent meta-analytic reviews, there is a lack of experimental research of self-compassion on women's body image within non-clinical samples (Braun et al., 2016; Turk & Waller, 2020). In one of the first studies examining the experimental effects of

self-compassion on eating concerns, Adams and Leary (2007) randomly assigned undergraduate women who were high in restrictive eating to a self-compassion induction condition or a control condition after eating a doughnut. In the self-compassion condition, women were instructed to respond to themselves using self-kindness, common humanity, and mindfulness after the doughnut was framed as an unhealthy food, while women in the control condition were given no instructions after eating the doughnut. Compared to the control condition, women in the self-compassion condition scored higher on self-compassion and consumed less candy in a subsequent “taste test” compared to women in the control condition.

In another non-clinical experimental study, undergraduate women who scored high on body image concerns were randomly assigned to listen to three weeks of self-compassion podcasts and meditations based on the Mindful Self-Compassion (MSC) training protocol (Neff & Germer, 2012) or to a wait-list control group for three weeks (Albertson et al., 2015). At post-test, women in the self-compassion condition scored significantly higher in self-compassion and body appreciation, and significantly lower in body dissatisfaction, body shame, and appearance contingent self-worth than women in the control group. A mediational effect was found for self-compassion, suggesting that the intervention improved body appreciation and reduced body shame, body dissatisfaction, and appearance contingent self-worth through self-compassion. These effects were retained at a 3-month follow-up.

Though Albertson et al.’s (2015) study showed an effect of successfully inducing self-compassion through meditation and podcasts to reduce negative body image concerns and improve body appreciation, the attrition and non-compliance rates were very high. To examine whether a succinct version of Albertson’s et al. (2015) study would lower attrition rates but still find the same effects, Toole and Craighead (2016) conducted a similar study using the same

podcasts and meditations based on the MSC training protocol (Neff & Germer, 2013) in the Albertson et al. (2015) study. Undergraduate women were randomly assigned to a self-compassion meditation and podcast group or a wait-list control group for a 1-week period instead of a 3-week period. Although the self-compassion intervention group reported higher levels of body appreciation, and lower appearance-contingent self-worth and body surveillance at post-test, the shorter intervention period did not improve attrition rates or participant's compliance to listen to the podcasts and meditations on their own. Further, there were no differences in body shame or body dissatisfaction between the self-compassion condition and the wait-list control condition.

### 1.3 Self-Compassion Focused Writing Tasks

The more recent experimental studies that have investigated the impact of self-compassion cultivation on body image in non-clinical samples have included a range of interventions including guided compassionate self-help (e.g., Vimalakanthan et al., 2018), mobile applications (e.g., Rodgers et al., 2018), and group-based delivery (e.g., Voelker et al., 2019). However, a popular method of inducing self-compassion within the context of body- and eating-related concerns in non-clinical samples of women is with self-compassionate writing. Self-compassionate writing has been examined in a variety of contexts including stress reduction (Leary et al., 2007), rumination and self-criticism in female athletes (Mosewich et al., 2013), anxiety (Harwood & Kocovski, 2017), and more recently, body image (Moffitt et al., 2018; Seekis et al., 2017; Stern & Engeln, 2018). In self-compassion focused writing tasks, participants write about a negative experience that is related to a specific topic (e.g., stress, anxiety) and then respond to writing prompts that coincide with the three compassionate responding elements of self-compassion (i.e., self-kindness, common humanity, mindfulness). Self-kindness is probed by



asking participants to write in such a way that they were showing concern for a friend in the same situation; common humanity is probed by asking participants to describe other ways people that they know have experienced events similar to what they have experienced; and mindfulness is probed by asking participants to re-describe the event in an objective, unemotional manner (Leary et al., 2007; Ziemer et al., 2019). Preliminary work suggests that self-compassion focused writing interventions can bolster aspects of positive body image (e.g., body appreciation) and reduce aspects of negative body image (e.g., body dissatisfaction) (e.g., Guest et al., 2019; Moffitt et al., 2018; Seekis et al., 2017; Ziemer et al., 2019).

***Limitations of current self-compassionate writing interventions on women's body image.*** Self-compassionate writing may be an effective format for increasing self-compassion and improving body image because the writing tasks target each of the components of self-compassion and participants are taught how to access each component through the instructions of each task (Leary et al., 2007). In addition, self-compassionate writing is easily accessible outside of the research context for women to harness during distressing body-related events in their daily lives. Nevertheless, although these experimental studies have shown promising effects on women's body image, there are a number of limitations in these studies. First, the number of studies available that have tested a self-compassionate writing intervention on young women's body image outcomes are still small, and various aspects of positive and negative body image have not been tested as outcomes in these studies. For example, in self-compassionate writing studies, researchers tend to focus on body appreciation as an outcome variable to assess positive body image, and body dissatisfaction as an outcome variable to assess negative body image (Moffitt et al., 2018; Seekis et al., 2017; Ziemer et al., 2019). This makes it unclear how other

aspects of positive (e.g., broad conceptualization of beauty) and negative (e.g., self-objectification) body image may be influenced by self-compassionate writing.

Second, in self-compassion intervention studies, some researchers choose to assess self-compassion at the trait level (e.g., Albertson et al., 2015; Toole & Craighead, 2016; Ziemer et al., 2019), while other researchers choose to assess self-compassion at the state-level as a fluctuating variable (Moffitt et al., 2018; Seekis et al., 2017). Typically, self-compassion is measured at the trait-level in longer interventions (i.e., 1 week or longer), and self-compassion is measured at the state-level in shorter studies (i.e., 15 minutes or less). To date, only one study has assessed the impact of a self-compassionate writing intervention on women's positive body image (body appreciation and body image quality of life) and self-compassion at the trait-level. Ziemer et al. (2019) recruited a sample of college women and randomly assigned them to one of three conditions for three weeks: self-compassionate writing, traditional expressive writing, or control writing. Participants in the self-compassion condition wrote for 20 minutes once per week about their body image using the three components of self-compassion (i.e., self-kindness, common humanity, and mindfulness), while participants in the traditional expressive writing group were encouraged to 'let go' and write about their deepest feelings related to their body image for 20 minutes once per week. Participants in the control condition were asked to describe the events of their day for 20 minutes once per week. The results revealed that women in the self-compassionate condition reported significantly greater trait-level self-compassion after three weeks, but there were no effects by condition on participant's positive body image. Subsequent mediation analyses suggested that compared to the combined effects of the traditional writing and control group, greater self-compassion mediated the association between the self-compassion condition and positive body image.

Third, aside from Ziemer et al.'s (2019) study, other self-compassionate writing interventions that focus on influencing women's body image have not measured self-compassion as an outcome variable at the trait or state-level. For instance, Moffitt et al. (2018) randomly assigned undergraduate women to a 3-minute self-compassionate writing condition or a 3-minute self-esteem writing condition to cope with body and weight concerns. Although undergraduate women's trait self-compassion was measured at baseline, only body image outcomes were assessed at post-test. In Seekis et al. (2017) study, undergraduate women were randomly assigned to one of three conditions: self-compassionate writing (write in a self-compassionate manner on their body concerns), a self-esteem condition (write to enhance feelings of appearance-related self-worth) or a control condition (write about academic topics) for 15 minutes. However, trait self-compassion was not measured at baseline, and state self-compassion was also not measured at post-test. In one study which did measure self-compassion as an outcome variable, Przedziecki & Sherman (2016) recruited a sample of breast cancer survivors. Women were randomly assigned to a self-compassionate writing or control condition. Women in the self-compassion condition were instructed to write four pages about an adverse event that was related to their post-treatment body using the three components of self-compassion, while women in the control condition only wrote about the adverse event but received no further instructions. At post-test, women randomly assigned to the self-compassion condition experienced less negative affect and greater self-compassion, but body image outcomes were not assessed. Nevertheless, these results are limited to breast cancer survivors and do not necessarily apply to young college women. Overall, few studies investigating the effects of self-compassion interventions have confirmed that self-compassion did increase in response to the intervention.

## 1.4 Fear of Self Compassion

Though self-compassion cultivation may be an important tool to influence women's attitudes towards their body and appearance, some individuals may not want to practice self-compassion because they are unfamiliar with it, perceive it as a threat, or do not believe it would be effective (Gilbert, 2010a). For example, Gilbert and Procter (2006) found that when introducing self-compassion to a group of mental health patients, for some of the patients, the introduction to self-compassion was met with resistance, doubt, and fear rather than enthusiasm or curiosity. Moreover, individuals with abusive and unaffectionate childhoods, and those high in self-criticism, may be especially vulnerable to fear self-compassion and affiliative emotions in general (Gilbert, 2007; Gilbert & Procter, 2006; Mikulincer & Shaver, 2007). Indeed, in a functional magnetic resonance imaging (fMRI) study by Longe et al. (2010), it was found that when individuals who were high in self-criticism attempted to engage in self-assurance, the threat response area of the brain was activated.

Few studies have investigated the role of fear of self-compassion in the context of body image and disordered eating. One study found that fear of self-compassion was directly related to body shame in a sample of Portuguese women (Ferreira et al., 2019). Two other studies conducted with samples of eating disorder patients found that participants lower in baseline self-compassion only improved in eating disorder symptomatology over time if their fear of self-compassion was also low (Kelly et al., 2013), and lower baseline fear of self-compassion in a self-compassion focused therapy group predicted greater improvements in eating pathology over time (Kelly & Carter, 2015). It seems that both self-compassion and fear of self-compassion are relevant for body and eating-related outcomes. What is less clear is whether self-compassion writing interventions impact body image by increasing self-compassion, decreasing fear of self-compassion, or both.

## 1.5 Stigmatizing Self-Perceptions

### 1.5.1 Self-Objectification

Objectification theory posits that the sexual objectification of girl's and women's bodies in everyday life can lead to self-objectification, whereby girls and women come to habitually imagine their own bodies and appearance from an observer's perspective, value their appearance above all other attributes, and engage in excessive body monitoring in public and private settings (Calogero et al., 2011; Fredrickson & Roberts, 1997; Roberts et al., 2018). Self-objectification has been associated with serious mental health outcomes including depression, eating disorders, and sexual dysfunction (Calogero et al., 2005; Noll & Fredrickson, 1998; Tiggemann & Kuring, 2004; Tiggemann & Williams, 2012). Self-objectification is also related to other body-related concerns such as body shame and body dissatisfaction, which have been recognized as precursors to disordered eating and clinical eating disorders (Calogero et al., 2010; Harper & Tiggemann, 2008; Noll & Fredrickson, 1998).

Self-compassion may be helpful for decreasing self-objectification since it encourages a nonjudgmental standpoint on the self. One correlational study has shown a negative association between self-compassion and self-objectification (Liss & Erchull, 2015). One self-compassion-based intervention study included body surveillance as an outcome variable and found that self-compassion meditation decreased women's level of body surveillance after one week (e.g., Toole & Craighead, 2016). However, body surveillance represents a common, but limited measure of self-objectification (see Calogero, 2011 for a review). A more comprehensive assessment of self-objectification measures this variable along two key dimensions: the internalization of an observer's perspective and valuing appearance above other attributes wherein the body represents the self (Lindner & Tantleff-Dunn, 2017). Indeed, recent research has found a negative association between self-compassion and this conceptualization of self-objectification

(Huelleman & Calogero, 2020). The current study will expand on these findings by (a) testing whether a week-long daily self-compassionate writing intervention reduces self-objectification and (b) using this more comprehensive measure of self-objectification.

### 1.5.2 Body Shame

Body shame is a painful self-conscious emotion that arises from appraisals of one's body as bad, inadequate, or defective based on the perception that one has failed to meet an internalized standard for appearance (Calogero & Pina, 2011; Noll & Fredrickson, 1998). Body shame has been positively associated with clinical depression (Grabe et al., 2007) and eating disorder pathology (Schaefer et al., 2018), as well as negatively associated with self-compassion in several studies (Albertson et al., 2015; Breines et al., 2014; Ferreira et al., 2013). The phenomenological experience of body shame involves motivational and behavioural components tied to shame, such as a desire to hide from others, disappear, or be smaller, but this aspect of body shame has largely been neglected in body image research from a quantitative and measurement perspective (Lewis, 1971; Noll & Fredrickson, 1998). A recent evaluation of a phenomenological measure of body shame found excellent psychometric properties for the scale (Siegel et al., 2020). Another strength of this focus on phenomenological body shame is that it avoids a common problem in the measurement of shame; people may feel ashamed of reporting shame feelings and thus report less shame (Lewis, 1971; Tangney et al., 1996). A few studies have demonstrated that this phenomenological aspect of body shame is positively associated with self-objectification and negatively associated with self-compassion (Huellemann & Calogero, 2020; Kilpela et al., 2019; Noll & Fredrickson, 1998). Cultivating self-compassion may be a useful tool to combat the phenomenological aspects of body shame, as it involves actively

confronting rather than actively avoiding negative emotions and reacting to distressing emotions with self-kindness rather than self-criticism.

## 1.6 Affirming Self-Perceptions

### 1.6.1 Body Appreciation

Body appreciation refers to respecting and honouring the body, including both its functions, assets, and imperfections, while rejecting information that promotes the appearance ideal advertised in the media and in Western culture (Avalos et al., 2005). Body appreciation is one component of positive body image (Tylka & Wood-Barcalow, 2015a) that has been negatively associated with body surveillance, body shame, eating disorder symptomatology, and perfectionism (Avalos et al., 2005; Iannantuono & Tylka, 2012; Tylka & Kroon Van Diest, 2013). Body appreciation has also been positively associated with several well-being outcomes, such as self-esteem, positive affect, life satisfaction, and self-compassion in cross-sectional studies (Avalos et al., 2005; Tylka & Kroon Van Diest, 2013; Wasylikiw et al., 2012). A few self-compassion-focused interventions have shown increases in body appreciation (e.g., Albertson et al., 2015; Seekis et al., 2017; Toole & Craighead, 2016; Ziemer et al., 2019). Within self-compassionate writing interventions, one study included state body appreciation as an outcome (Seekis et al., 2017), and another included trait body appreciation as an outcome (Ziemer et al., 2019). Both studies showed an effect of self-compassionate writing over time on body appreciation. The current study will expand on these findings by testing whether a week-long daily self-compassionate writing intervention has the same impact on trait body appreciation compared to a three-week long intervention.

## 1.6.2 Broad Conceptualization of Beauty

Broad conceptualization of beauty is an understudied aspect of positive body image that refers to the perception that a broad spectrum of body sizes, weights, and shapes, as well as internal characteristics such as an individual's personality are considered beautiful (Tylka & Iannantuono, 2016). Importantly, broadly conceptualizing beauty does not just apply to the perception of others, but also applies to the perception of oneself (Tylka & Iannantuono, 2016). Qualitative research on positive body image suggests that some women appreciate different internal and external qualities in others and that women's perception of beauty may not be as inflexible as previously thought (Wood-Barcalow et al., 2010). This wider definition of beauty has been negatively associated with anti-fat attitudes, endorsement of cosmetic surgery for social and personal reasons, body comparisons, and thin-ideal internalization, and positively associated with body appreciation and self-compassion (Tylka & Iannantuono, 2016). It seems plausible that approaching one's negative body-related experiences with kindness, non-judgmental awareness, and a realization that most women experience distressing body-related events may, in turn, widen one's perception of beauty towards themselves and others. However, there is currently no experimental evidence that broad conceptualization of beauty can be influenced in any direction. The current study will illuminate how rigid or changeable the construct is when a compassion-focused intervention, such as self-compassionate writing, is performed in the context of women's body and appearance concerns.

## 1.7 Possible Covariates

### 1.7.1 Self-esteem

Self-esteem refers to having high self-regard and global self-worth, which can influence how a person functions psychologically (Tafarodi & Swann, 1995). Although global measures of



self-esteem are not necessarily appearance-focused (e.g., Rosenberg, 1985), research has demonstrated that global self-esteem is related to body image. That is, how a person feels about themselves on the whole is likely to be related in some way to how they feel about their body and its appearance. Indeed, women who report high self-esteem tend to score high on indicators of positive body image, while women low in self-esteem tend to score high on indicators of negative body image (Avalos et al., 2005; Lowery et al., 2005).

Research suggests that self-compassion and self-esteem are positively and moderately correlated, but that they are also distinct constructs (Neff, 2003). Although both constructs represent a positive way of relating to oneself, maintaining high self-esteem depends on consistently evaluating oneself in a positive light, while self-compassion involves wholeheartedly accepting all parts of an experience, even if they are uncomfortable or distressing (Harter, 1999; Neff & Vonk, 2009). Though self-compassion and self-esteem do share some variance, self-compassion and fear of self-compassion have been shown to explain unique variance beyond self-esteem on body-related outcomes (Kelly et al., 2012; Wasylikiw et al., 2012). Thus, controlling for how a person views themselves on the whole at baseline will shed light on whether self-compassion focused interventions can produce changes in self-compassion regardless of their self-esteem.

### 1.7.2 Internalized Weight Stigma

Internalized weight stigma refers to an awareness of negative weight-based stereotypes and discrimination and viewing oneself in those same terms (Durso & Latner, 2008). People who are high in internalized weight stigma devalue and blame themselves for their weight (Durso & Latner, 2008; Meadows & Higgs, 2019). As such, people who stigmatize themselves for their weight believe that they are personally responsible for their weight and undeserving of respect

because of their weight. Although people of a higher weight are more likely to report higher internalized weight stigma (and experience weight stigma in public and private settings), research suggests that people across the weight spectrum can internalize weight stigma (Pearl & Puhl, 2014). The narrative in scientific research has long been that high BMI is the *cause* of negative health outcomes. However, research suggests that BMI is a poor and inaccurate proxy for health and psychological problems (Tomiya et al., 2018). Emerging research indicates that experiences of weight stigma and discrimination, rather than high weight itself, explain the association between BMI and health outcomes (e.g., Mensinger et al., 2016; Mensinger & Meadows, 2017; Tomiya et al., 2018). In addition, research has shown that BMI and internalized weight stigma are highly correlated (Pearl & Puhl, 2014). In this thesis, I will control for participant's level of internalized weight stigma (as opposed to BMI) to examine the effects of a self-compassion focused writing intervention when adjusting for internalized weight stigma.

### 1.7.3 Eating Disorder Symptomatology

Severe body image disturbance is a core characteristic of an eating disorder diagnosis (Cash & Deagle, 1997; Fairburn & Harrison, 2003). Women with eating disorders report lower self-compassion and higher fear of self-compassion than non-clinical student samples (Kelly et al., 2014). There is a paucity of research on self-compassion focused writing interventions in both clinical and non-clinical samples of women. Screening for eating disorder symptomatology, and conducting the analyses while controlling for this variable, can help determine if eating disorder symptomatology is associated with success (or lack of success) of self-compassion-focused interventions.

## 1.8 Overview and Hypotheses

Despite the increased attention being given to self-compassion as a resource to support positive body image in women, there is a dearth of experimental research testing the causal effects of being self-compassionate on women's body image. The current study examines whether self-compassion can be cultivated and fear of self-compassion can be reduced through a focused, 1-week intervention that uses a daily writing technique, and whether it can increase positive body image (i.e., body appreciation, broad conceptualization of beauty) and decrease negative body image (i.e., self-objectification, body shame). Effects of the intervention will be examined immediately following the intervention and one month later, while controlling for age, self-esteem, internalized weight stigma, and eating disorder symptomatology. Specific hypotheses are detailed below.

First, I hypothesize that daily self-compassionate writing will increase self-compassion and affirming self-perceptions and decrease fear of self-compassion and stigmatizing self-perceptions in young undergraduate women. If daily self-compassionate-writing is effective in changing self-perceptions, then undergraduate women who engage in a brief interval of daily self-compassionate writing online for one-week will report higher levels of self-compassion, body appreciation, and broad conceptualization of beauty (Hypothesis 1), and lower levels of fear of self-compassion, body shame, and self-objectification (Hypothesis 2) post-intervention, compared to an attentional control condition and a waitlist control condition, and that these effects will remain after adjusting the model for self-esteem, internalized weight stigma, eating disorder symptomatology, and age (Hypothesis 3). I also expect these effects to be robust over time and maintained one-month following the intervention (Hypothesis 4). Finally, I hypothesize that any effects of the intervention on the outcomes will be explained by self-compassion and fear of self-compassion. I expect that self-compassion and fear of self-compassion will mediate

the link between participation in the self-compassion intervention and both the affirming self-perceptions (Hypothesis 5) and the stigmatizing self-perceptions (Hypothesis 6).

## Chapter 2

### 2 Method

#### 2.1 Power

A statistical power analysis was conducted *a priori* using G\*Power 3.1 (Faul et al., 2007). The power analysis determined that 161 participants would be needed to detect a small-to-moderate effect ( $f = .25$ ,  $\alpha = .05$ ,  $\beta = .80$ ) for a 3 x 3 repeated measures, within-between interaction design. However, I anticipated that some attrition would occur and aimed to recruit 200 women-identified students at Western University enrolled in the SONA system.

#### 2.2 Participants

The study was approved in the Fall of 2019 by the Western University Research Ethics Board for Non-Medical Research Involving Human Subjects (see Appendix A for approval). Participants included in this study were female-identified undergraduate students enrolled in both an undergraduate psychology course and Western University's SONA system database. In exchange for their participation, students were compensated with course credit for each component of the study that they participated in. In total, 264 participants attended the information session and all 264 participants indicated their interest in participating in the study fully. Thus, 264 participants were sent the online link to the first assessment via their email address. The study ran from September 2019 to March 2020.

Demographic characteristics of the final sample are presented in Table 1. Most participants were White (50.2%) followed by South Asian (13.9%), and Chinese (13.4%).

Participants reported their socioeconomic status as middle class (44.6%) followed by upper middle class (34.7%), and lower middle class (8.9%). Most participants (82.7%) did not attend the information session with a friend, and most participants (82.7%) did not have a score on the EAT-26 that was greater than 20 (a score greater than 20 indicates high likelihood of an eating disorder).

**First assessment.** Although there were 289 clicks to begin the assessment, 11 of the responses were blank and did not continue past the Letter of Information and Consent page ( $n = 278$ ). Three participants with the same SONA ID filled out the assessment three times. The participant's first response that was 100% completed was retained, and their other responses were removed ( $n = 272$ ). Fifteen participants with the same SONA ID filled out the assessment two times each. Again, the participant's first response that was 100% completed was retained, their other responses were removed ( $n = 257$ ). Finally, three participants did not identify as a woman, resulting in a total sample of 254 women-identified participants at the baseline assessment. Thus, seven participants did not complete the baseline assessment within 24 hours and were not randomly assigned to any conditions.

**Second assessment.** For the second assessment, there were 275 clicks to begin the assessment. However, 21 of these responses did not continue past the first page of the assessment and were deleted ( $n = 254$ ). Six participants with the same SONA ID filled out the assessment twice. Similar to the protocol for the first assessment, the participant's first response that was 100% completed was retained, and their other responses were removed ( $n = 248$ ). One participant filled out the assessment four times, so only their first 100% completed response was retained ( $n = 245$ ). One response was removed because it did not match any of the SONA ID's from the first assessment ( $n = 244$ ). Finally, the responses from the three individuals who did not

**Table 1***Demographic Characteristics of Sample (N = 202)*

Characteristic		N (%)
Education Level		
	Primary level	3 (1.5%)
	Secondary level	132 (65.3%)
	Bachelor's degree	67 (33.2%)
Ethnic Identity		
	White	102 (50.5%)
	Chinese	27 (13.4%)
	Korean	6 (3.0%)
	South Asian	28 (13.9%)
	Southeast Asian	5 (2.5%)
	Middle Eastern	10 (5.0%)
	Black	4 (2.0%)
	Filipino	1 (0.5%)
	Latin	3 (1.5%)
	Other	5 (2.5%)
	Multiple	11 (5.4%)
Socioeconomic Status		
	Lower class	5 (2.5%)
	Working class	5 (2.5%)
	Lower middle class	18 (8.9%)
	Middle class	90 (44.6%)
	Upper middle class	70 (34.7%)
	Upper class	13 (6.4%)
Religious Affiliation		
	Christian	67 (33.2%)
	Jewish	10 (5.0%)
	Muslim	17 (8.4%)
	Hindu	14 (6.9%)
	Other	16 (7.9%)
	None	78 (38.6%)
Attended Information Session with Friend		
	Yes	35 (17.3%)
	No	167 (82.7%)
EAT-26 Score > 20		
	Yes	35 (17.3%)
	No	167 (82.7%)
Continued Engagement with Writing Tasks (SC condition)		
	No Days	33 (44.6%)
	1-5 Days	31 (41.9%)
	6-12 Days	3 (4.1%)
	13-15 Days	3 (4.1%)
	16-22 Days	1 (1.4%)
Continued Engagement with Writing Tasks (AC condition)		
	No Days	40 (55.6%)
	1-5 Days	21 (29.2%)
	6-12 Days	7 (9.7%)
	23-27 Days	1 (1.4%)
	Everyday	3 (4.2%)

identify as a woman in the first assessment were removed, resulting in 241 responses for the first and second assessment.

**Third assessment.** For the third assessment, there were 236 clicks to begin the assessment. Thirteen participants filled out the assessment twice. Again, only their first response that was 100% completed was retained, and their other responses were removed ( $n = 223$ ). There were also two responses which had unique SONA ID's that could not be matched to the first or second assessment and were removed. Finally, two blank responses that did not continue past the first page as well as the two participants who did not identify as a woman in the first assessment were removed (the third participant who did not identify as a woman did not complete the third assessment).

## 2.3 Materials

### 2.3.1 Demographics

Participants only completed the demographic questions at baseline. Participants were given six options to self-report their gender: a) woman (cis-gender), b) woman (transgender), c) man (cis-gender), d) man (transgender), e) non-binary, or f) prefer not to say. Participants were removed from the dataset if they did not self-report their gender as 'woman (cis-gender)'. For education level, participants were given five options: a) no formal education, b) primary level education, c) secondary level education, d) college education (Bachelor's degree), or e) graduate education (Graduate degree). Participants were also asked 'Is English your first language' (yes or no) as well as 'How would you rate your English proficiency?' where they could respond a) fluent, b) moderate, or c) basic. Participants were given six options to self-report their religious affiliation: a) Christian, b) Jewish, c) Muslim, d) Hindu, e) None, or f) Other, as well as six options to self-report their socioeconomic status: a) lower class, b) working class, c) lower

middle class, d) middle class, e) upper middle class, f) upper class. To measure participant's ethnicity, participants were given the options of a) Aboriginal (e.g., North American Indian, Indian, Metis, Inuit), b) White, c) Chinese, d) Korean, e) South Asian, f) Southeast Asian (e.g., Vietnamese, Cambodian), g) Middle Eastern, h) Black, i) Filipino, j) Latin, or k) Other. Participants were also asked their age and provided an open-ended response. Finally, participants were asked, 'Did you attend the information session with a friend or someone that you know?' where they had a binary response option of 'yes' or 'no'.

## 2.3.2 Baseline and Outcome Measures

**Body shame.** Feelings of motivational and behavioural aspects of body shame were measured using the Phenomenological Body Shame Scale (PBSS; Fredrickson et al., 1998). Participants were asked to imagine looking at their body in a mirror and respond to 18 items on a 5-point scale from 1 (*not at all*) to 5 (*extremely*). Questions assess the motivational and behavioural aspects of body shame (e.g., "I wish I were invisible") as well as global attributions (e.g., "I feel like an ugly person"). Although the original PBSS scale contains 18-items, a recent study which investigated the factor structure of this scale determined that a 9-item version provided better fit to the data (Siegel et al., 2020)<sup>1</sup>. Scores in this scale are added up and then averaged, with higher mean scores indicating higher levels of phenomenological body shame. The PBSS has demonstrated excellent internal consistency in past research using the 18-item version (e.g.,  $\alpha = .96$ ; Kilpela et al., 2019). In the current study using the 9-item version,  $\alpha = .90$  at Time 1 (T1),  $\alpha = .91$  at Time 2 (T2), and  $\alpha = .92$  at Time 3 (T3).

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<sup>1</sup> Before using the 9-item version, I compared the bivariate correlations between the 9-item and 18-item version with other study variables. There were no significant differences in the correlation matrix when using the 9-item or 18-item version, and the mean was nearly identical for the 9-item version ( $M = 2.05$ ,  $SD = 0.92$ ) compared to the 18-item version ( $M = 2.03$ ,  $SD = 0.88$ ).



***Self-objectification.*** The Self-Objectification Beliefs and Behaviors Scale (SOBBS; Lindner & Tantleff-Dunn, 2017) is a newer measure of self-objectification that was developed to address methodological issues with other scales for self-objectification (see Calogero, 2011 for a review). Participants rated the extent to which they agreed or disagreed on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*) with statements about viewing their body from an outsider's perspective (e.g., "I have thoughts about how my body looks to others even when I am alone"; "I try to imagine what my body must look like to others"), valuing their appearance above other attributes of the self (e.g., "How I look is more important to me than how I think or feel"), and treating their body as if it has the capability to represent oneself as a person ("My physical appearance says more about who I am than my intellect"). There are also two subscales for this measure. The first subscale measures the degree to which a person internalizes an observer's perspective on the body (SOBBS-F1), and the second subscale measures how much a person treats their body as if it were capable of representing themselves (SOBBS-F2). Scores for the full scale and subscales are added up and then averaged with higher scores reflecting higher levels of self-objectification. In the current study, I used the two subscale scores rather than a total score to dissect the effects of the intervention on these two components of self-objectification. In past research using a sample of women recruited from Amazon Mechanical Turk (Mturk), internal consistency for the total score of the SOBBS was good ( $\alpha = .92$ ; Lindner & Tantleff-Dunn, 2017). In the current, study,  $\alpha = .88$  for SOBBS-F1 and  $\alpha = .85$  for SOBBS-F2 at T1. At T2,  $\alpha = .90$  for SOBBS-F1 and  $\alpha = .89$  for SOBBS-F2. At T3,  $\alpha = .91$  for SOBBS-F1 and  $\alpha = .90$  for SOBBS-F2.

***Body appreciation.*** The Body Appreciation Scale-2 (Tylka & Wood-Barcalow, 2015a) was used as an indicator of positive body image to assess the degree one holds respect and cares

for their body. This scale consists of 10 items pertaining to feeling positively about the body (“e.g., I feel good about my body; I feel love for my body”) and caring for its needs (e.g., “I am attentive to my body’s needs”). Items are rated on a 5-point scale from 1 = *never* to 5 = *always*. Participants’ scores are calculated by summing and then averaging their responses, with higher scores indicate greater body appreciation. The scale has shown excellent internal consistency in past research ( $\alpha = .94$ ; Tylka & Wood-Barcalow, 2015a). In the current study,  $\alpha = .93$  at T1,  $\alpha = .94$  at T2, and  $\alpha = .94$  at T3.

***Broad conceptualization of beauty.*** The degree to which an individual has a wider perception of beauty in relation to and beyond appearance factors (e.g., weight, personal style, confidence, personality) was assessed with the 9-item Broad Conceptualization of Beauty Scale (Tylka & Iannantuono, 2016). This measure asks participants about how much they incorporate personality characteristics (e.g., “A woman’s confidence level can change my perception of her physical beauty) and other physical features (e.g., “I think a wide variety of body shapes are beautiful for women”) into their definition of beauty for women. Items are rated on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The items are added up and then averaged, with higher scores reflecting a broader conceptualization of beauty. This scale has shown acceptable internal consistency in university women ( $\alpha = .85$ ; Tylka & Iannantuono, 2016). In the current study,  $\alpha = .79$  at T1,  $\alpha = .87$  at T2, and  $\alpha = .84$  at T3.

***Self-compassion.*** The 26-item Self-Compassion Scale (SCS; Neff, 2003a) was used to assess the extent to which a person responds with kindness, sympathy, and a sense of awareness during distressing events. The SCS contains six subscales that can be individually calculated to assess participant’s levels of self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification. The total score can also be used to assess a person’s overall

level of self-compassion. Responses are anchored on a 5-point scale from 1 (*almost never*) to 5 (*almost always*) and measure how often an individual acts kindly towards themselves in distressing situations (e.g., “I try to be loving towards myself when I’m feeling emotional pain”), recognizes that imperfections and mistakes are a part of being human (e.g., “I try to see my failings as part of the human condition”), and approaches painful emotions or experiences with a sense of objective awareness rather than overidentification (e.g., “When I’m feeling down, I try to approach my feelings with curiosity and openness”). The total score for the SCS has demonstrated excellent reliability among undergraduates and community adults ( $\alpha = .93$ ; Neff & Pommier, 2012). In the current study,  $\alpha = .92$  at T1,  $\alpha = .93$  at T2, and  $\alpha = .93$  at T3.

***Fear of self-compassion.*** Fear of self-compassion will be measured using the Fear of Self-Compassion Scale (Gilbert et al., 2011) which contains 15-items that address fear, resistance, and doubt towards self-compassion (e.g. “I fear that if I am too compassionate toward myself, bad things will happen”; “I have never felt compassion for myself, so I would not know where to begin to develop these feelings”; “I fear that if I become too compassionate to myself I will lose my self-criticism and my flaws will show”). Participants rated the items on a 5-point scale from 1 = *don’t agree at all* to 5 = *completely agree*. Items are added up and then averaged. Higher scores reflect a greater fear towards self-compassion. The scale has shown good internal consistency in university students ( $\alpha = .85$ ; Gilbert et al., 2011). In the current study,  $\alpha = .93$  at T1,  $\alpha = .95$  at T2, and  $\alpha = .95$  at T3.

### 2.3.2 Covariate Measures

***Self-esteem.*** Participant’s self-esteem was measured using the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965). This measure examines the extent that individuals have global positive or negative perceptions about themselves (e.g., “On the whole, I am satisfied with

myself”; “I certainly feel useless at times”) on a 4-point Likert scale from 1 (*strongly disagree*) to 4 (*strongly agree*). To calculate a participant’s level of self-esteem, items are added up and then averaged, with higher scores reflecting greater self-esteem. The Self-Esteem Scale has shown good internal consistency in prior research using university students ( $\alpha = .79$ ; Lowery et al., 2005). In the current study,  $\alpha = .88$  at T1.

***Internalized weight stigma.*** I controlled for participant’s baseline level of internalized weight stigma using the 13-item Two-Factor Weight Bias Internalization Scale (WBIS-2F; Meadows & Higgs, 2019). Given our interest in internalized weight stigma broadly, we used a total score. This scale was developed to account for the self-devaluation component of internalized weight stigma that has been left out of popular scales to measure this construct. As such, the WBIS-2F measures weight-related distress and self-devaluation due to weight. The WBIS-2F contains similar wording to the original weight bias internalization scale by Durso and Latner (2008) which uses the terms “overweight” within the items in a sample of higher weight individuals. However, since previous research has found that internalized weight stigma can affect those across the weight spectrum (Pearl & Puhl, 2014), I changed the items in the scale to “my weight” instead of “overweight” in this university sample of women. Items were rated on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Items were added up and then averaged. Prior research has shown that the WBIS-2F has good internal consistency in a sample of higher weight individuals (Meadows & Higgs, 2019). In the current study,  $\alpha = .88$  for the full scale at T1.

***Eating disorder symptomatology.*** I measured the degree to which participants engaged in eating disorder symptoms using the Eating Attitudes Test-26 (EAT-26; Garner et al., 1989). Participants responded to 26-items using a 6-point scale from 1 = *never* to 6 = *always* on how

much they engaged in dieting, bulimic, and food control behaviors (e.g., “I avoid foods with sugar in them”; “I find myself preoccupied with food”; “I display self-control around food”). To score this scale, participants’ scores are first recoded such that for items 1-25, *always* = 3, *usually* = 2, *often* = 1, *sometimes* = 0, *rarely* = 0, and *never* = 0. Item 26 is also recoded such that *always* = 0, *usually* = 0, *often* = 0, *sometimes* = 1, *rarely* = 2, and *never* = 3. Scores are added up with scores greater than or equal to 20 indicating high eating disorder risk. In the current study, 17.3% of the sample had scores greater than or equal to 20.

**Age.** Given the age range of participants in the sample (17-23), age was also included as a covariate. Although the age range was not large, past research has demonstrated that older, female adolescents have significantly lower self-compassion than younger, female adolescents (Bluth et al., 2017), and that negative body image increases significantly from high school to young adulthood for females (Bucchianeri et al., 2013).

**Continued engagement in writing tasks.** Although participants were not required to engage in the writing tasks between the T2 and T3 assessment, it is possible that some participants may enjoy the self-compassionate or attentional-control condition writing tasks, or feel that they benefit from them, and choose to engage in them on their own after the intervention ends. Thus, I included a question within the T3 assessment which asked participants, “We are interested in whether you continued to perform the writing tasks that you completed in the first part of the study. Please use the scale below to indicate how often you engaged in these writing tasks over the past month (four weeks). There are no right or wrong answers, so please provide us the most accurate response possible.” Participants responded on a 7-point scale where 1 = *no days*, 2 = *1-5 days*, 3 = *6-12 days*, 4 = *13-15 days*, 5 = *16-22 days*, 6 = *23-27 days*, 7 = *every day*. Just under half of the participants in the SC condition (44.9%) and just over half of the AC

condition (55.6%) reported that they did not continue to engage with the writing tasks between T2 and T3. Given that this variable was correlated with some of the dependent variables at T3, it was included as an additional covariate in the MANCOVA.

## 2.4 Procedure

### 2.4.1 Information Session Instructions

Participants first signed up to attend an in-person 30-minute information session for the study on Western University's SONA system database (see Appendix B for SONA recruitment advertisement). Information sessions were delivered in a small classroom at Western University in groups of one to 10. Participants listened to a script from either the first author or a trained undergraduate psychology student while viewing a PowerPoint presentation that told them more about the purpose of and instructions for their participation in the study (see Appendix C for the script and Appendix D for the slides of the PowerPoint presentation).

Participants were informed that the purpose of the study was to write daily about stress experienced in university and that each of them would be randomly assigned to only write about academic-related stress, appearance-related stress, or relationship-related stress for five consecutive days. As part of their participation, participants were told that their first task was to complete a 20-30-minute online assessment within 24 hours which contained a Letter of Information and Consent form (see Appendix E) followed by a series of measures. Next, participants were told that if they completed the first assessment within 24 hours, they would be randomly assigned to write about academic-related stress, appearance-related stress, or relationship-related stress via daily online links sent to their email for five consecutive days. Participants were instructed that at 9:00 AM EST each day they would be sent an online link to their university email address which contained their writing task for the day and a text box to

type their response in. Participants were also informed that they would receive a reminder email to complete the writing task for the day at 6:00 PM EST and that they had from 9:00 AM to 11:59 PM to complete the writing task for that day. Participants were then shown example writing prompts for each of these three conditions.

Next, participants were told that the day after completing the fifth writing task, they would be sent another online link via email to complete a 20-30-minute assessment in which they had 48 hours to complete. Finally, participants were instructed that they would be sent another assessment via an online email link one month after the second assessment that was also 20-30 minutes long. At the end of the presentation, the researcher answered any questions that participants had and then gave each participant a slip of paper where they indicated if they were interested in participating in the entire study, their university email, and their unique ID code so that they could be awarded course credit for participating. After the information session, participants who indicated that they were interested in participating in the entire study were sent the link to the first online assessment which contained the Letter of Information and Consent and the baseline measures.

## 2.4.2 Actual Intervention, Deception, and Randomization

Participants in the information session were told that they would receive writing tasks each day pertaining to their randomly assigned condition (i.e., academic-related stress, appearance-related stress, or relationship-related stress) and were shown example writing tasks in the information session for each of these conditions. In actuality, following their completion of the first assessment within 24 hours, participants were either randomly assigned to a self-compassionate writing condition, an attentional-control writing condition, or a wait-list control condition using a random number generator (<https://www.randomizer.org>) where 1 = self-

compassionate writing condition, 2 = attentional-control writing condition, or 3 = wait-list control condition. I recruited three research assistants who were blinded to the hypotheses to coordinate one of the three conditions. I provided each research assistant with the email address for participants randomly assigned to their condition after they completed the first assessment, and then each research assistant sent the study links for all of the writing tasks and assessments to their participants via email. All study links to the writing tasks, post-test assessment, and one-month follow-up assessment were sent from three different Gmail accounts (i.e., one per research assistant) which allowed us to automate the process for sending the relevant study links to each participant. All emails sent to participants used the Bcc: function in order to maintain anonymity throughout the data collection process.

## 2.4.2 Writing Tasks

The specific questions that were delivered to participants on each day of the intervention within the SC condition can be seen in Table 2, and the questions delivered to participants on each day of the intervention within the AC condition Table 3.

***Self-compassion (SC) condition.*** Participants randomly assigned to the SC writing condition responded to one online writing prompt each day for five consecutive days. For the first prompt on the first day of the intervention, participants were asked to “describe an event that made you feel bad about your body.” Participants were instructed to try and be as descriptive as possible and, “explain what happened, where it was, who was there, and how you felt in response to this event.” The next three writing prompts were designed to target the three components of self-compassion (self-kindness, common humanity, mindfulness) that were based on past research using self-compassionate writing prompts for women’s body image (e.g., Leary et al., 2007; Seekis et al., 2017). The common humanity prompt was delivered on the second day of the



intervention, the self-kindness prompt was delivered on the third day, and the mindfulness prompt was delivered on the fourth day. On the fifth day, participants were instructed to describe a different event that made them feel bad about their body but write about the experience using what they had learned from the three previous prompts.

**Table 2**

*Writing Prompts Delivered to Participants Each Day Within the Self-Compassionate Writing Condition*

<u>Day</u>	<u>Writing Prompt</u>
Day 1	Describe an event that made you feel bad about your body.
Day 2	Think of any friends, family, or peers that have had a similar experience to what you described yesterday. (Reminder: Yesterday, you wrote about an event that made you feel bad about your body). Briefly describe who the individuals were that had a similar experience to you (e.g., Mom, Dad, friend) and how that experience was similar to what you experienced.
Day 3	Write a few sentences to yourself expressing kindness and concern for the event that you experienced and described on the first day (Reminder: You wrote about an event that made you feel bad about your body). It may help to write as if you were speaking to a close friend experiencing the same event that you experienced and trying to be supportive. What would you say to them?
Day 4	Recall that on the first day, you wrote about an experience that made you feel bad about your body. This time we would like you to write about that event from a different perspective. Try to accept any emotions that you felt in response to that event in a nonjudgmental way and describe them. Why did it make sense for you to feel those emotions? Try to think of and write about other factors in the environment (e.g., people, location, culture) that contributed to making you feel bad about your body. The point of this exercise is to practice accepting uncomfortable and distressing experiences without self-judgment or criticism.
Day 5	<p>Think of a new event that happened recently or in the past that made you feel bad about your body. Using what you learned in the past 4 days, start by:</p> <p>a) describing the event in an objective manner, and try to explicitly accept any emotions that you felt in response to this event without judgment,</p> <p>b) think of friends/family/peers who experienced an event similar to you and briefly describe how what they experienced was similar to your experience and,</p> <p>c) write a few sentences to yourself expressing kindness and concern (it may help to imagine you were writing to a close friend who experienced the same event)</p>

**Table 3***Writing Prompts Delivered to Participants Each Day Within the Attentional-Control Writing Condition*

Day	Writing Prompt
Day 1	What do you think the appearance ideal currently is for women?
Day 2	Do you think the appearance ideal in Western culture is different than the appearance ideal in other cultures or countries? How so?
Day 3	Describe the most salient beauty ideals that you have seen in the media (e.g., TV shows, social media, news reports, movies, magazines, etc.).
Day 4	Do you think that the appearance ideal is different from the viewpoint of men versus women? Describe appearance expectations from the perspective of men and how that differs from the appearance expectations from the perspective of women.
Day 5	Think about some contexts or environments where the appearance ideal may be absent (i.e., you don't see, hear, or think about it). Try to list and describe at least two contexts.

***Attentional-control (AC) condition.*** Participants randomly assigned to the AC writing condition also responded to one writing prompt each day for five consecutive days. However, these writing prompts differed from the SC writing condition since they were designed to make appearance ideals salient without instructing participants to think about this information in a self-compassionate or personal manner. For the first prompt on the first day of the intervention, participants are asked, “What do you think the appearance ideal currently is for women?” For the remaining days, participants received similar prompts pertaining to how they thought the appearance ideal for women differed or stayed the same in various contexts. On each day, participants were asked to try and write for at least 10 minutes. Although the specific questions

in this condition were not taken from any existing body image program, the aim of the prompts for this condition was to make participant's think critically about salient appearance ideals for women, which is the goal of many current body image interventions (Yager et al., 2013).

***Wait-list (WL) condition.*** Participants randomly assigned to the WL control condition did not perform any writing prompts for five consecutive days after completing the first assessment. Participants in this condition received an email after completing the first assessment which stated that too many participants had signed up for the study, that they were placed on a wait-list until further notice, and that they would receive any updates on alternative tasks that they can do for course credit in six days. After six days, participants in the WL condition were sent an email that asked them to complete another assessment for the same number of course credits that they would obtain for completing the writing tasks that they were told about in the information session.

### 2.4.3 Assessments

Participants completed three assessments at three different time points. All measures were presented in counterbalanced order to participants in each online assessment, and the demographic questions were only presented to participants in the baseline assessment. The first assessment was completed at baseline (i.e., after the information session and 24 hours before the writing tasks). The post-test assessment was completed one week after the first assessment. For participants who were randomly assigned to the SC writing condition or the AC writing condition, they were emailed the post-test assessment the day after completing the fifth writing task. For participants who were randomly assigned to the WL condition, they were emailed the post-test assessment on the same day as participants in the SC writing condition and the AC writing condition. The one-month follow-up assessment was emailed to all participants four

weeks after the post-test assessment. The debriefing form was presented to participants on the last page of the one-month follow-up assessment (see Appendix G).

## 2.5 Analytic Strategy

This section presents the analytical strategy for the thesis in a series of steps. To begin, I excluded any cases at each time point that failed to pass at least one attention check. Cases were also excluded if they did not complete the assessments at all three timepoints, and if they failed to complete at least three of the five writing tasks for the SC and AC condition.

Next, data were screened for non-normality as well as univariate and multivariate outliers. For univariate outliers, I inspected the skewness, kurtosis, and boxplots for each dependent variable at each timepoint. Dependent variables were assumed to be non-normal if they had skewness values exceeding  $\pm 3$  for skewness and  $\pm 10$  for kurtosis (Kline, 2011). Boxplots for dependent variables with high kurtosis values were inspected more closely to determine if outliers should be removed (i.e., more than 1.5 or 3.0 interquartile ranges (IQR) that were below the lower quartile or above the upper quartile). For multivariate outliers, separate linear regressions were run with all of the dependent variables for each time point, as well as a separate linear regression with all of the dependent variables across all three time points entered simultaneously. Mahalanobis distance values were saved and compared to a chi-square distribution with the same degrees of freedom as the linear regressions (i.e., the number of variables that were entered into each linear regression). Next, I inspected the pattern of responding for any case that had a high Mahalanobis distance value that was  $p < .001$  when compared to the chi-square distribution. Multivariate outliers were only removed if they had a strange pattern of responding (e.g., selecting only one option for entire measures in the

assessment) or if their mean scores were significantly different from the rest of the sample on multiple measures.

Then I inspected the data for missing values. I calculated the percentage of missing data at each time point and the attrition rate across the study. I also explored whether data missingness could be explained by other variables in the study by creating a binary missingness variable for each of the seven dependent variables at T3 (1 = “missing”, 0 = “not missing”), and running multiple independent samples *t*-tests with the missingness variable at T3 as the independent variable (e.g., missingness for self-compassion) and the corresponding T1 variable (i.e., T1 self-compassion) as the dependent variable. The detection of a significant difference for a variable indicates that participants were more likely to drop out of the study by T3 if they were significantly higher or lower on that variable at T1. Once the data were thoroughly inspected and the cases for inclusion were determined, I analysed and summarized the demographic characteristics of the final sample. Then I calculated the means, standard deviations, and bivariate correlations for each of the baseline, outcome, and covariate measures at each of the three time points.

Next, for the main analysis, I conducted a MANOVA and MANCOVA to test for main and interaction effects in the 3 (Condition: self-compassion, active control, or waitlist) X 3 (Time: T1-baseline, T2 – post-intervention, T3 – 1 month follow-up) mixed model with and without covariates. I requested post-hoc tests for the T1 variables to determine whether the mean scores across the three conditions did not significantly differ and random assignment was successful. I then inspected the results of the MANOVA/MANCOVAs to determine the presence of any main effects of Condition or Time on the seven dependent variables as well as any Condition by Time interaction effects. Given that MANCOVA uses listwise deletion of cases, I

replicated the results using latent growth curve modelling (LGM) in Mplus 6.12 (Muthén & Muthén, 2012) to compare individual longitudinal trajectories over time in the dependent variables by condition. LGM is superior at handling missing data because it uses full information maximum likelihood (FIML; FIML; Graham et al., 1996), and therefore no cases were deleted from analysis.

As an additional step, I conducted an exploratory analysis on the six subscales of the SCS in order to determine whether individual components of self-compassion, as opposed to the total sum of self-compassion, varied by condition at each time point based on recent recommendations that to explore the mechanics of self-compassion in self-compassion interventions, the six subscales should be used in analyses (Neff et al., 2017; Neff, 2020). Similar to the approach described above, I first conducted a MANCOVA with the six subscales as the dependent variables, and replicated these findings using LGM.

Finally, I planned to test the direct and indirect effect of the intervention condition on the dependent variables at each time point through self-compassion and fear of self-compassion using Mplus Version 6.12 (Muthén & Muthén, 1998-2011). Model fit was to be determined using conventional criteria of CFI values around  $\geq .95$ , SRMR values around .08, and RMSEA values around  $\leq .06$  (Hu & Bentler, 1999). Significance of the indirect path was to be assessed using 90% bias-corrected confidence intervals with 10,000 bootstrap resamples. However, self-compassion and fear of self-compassion did not significantly vary as a function of the intervention condition across the time points, and therefore it was not possible to test for mediation in this thesis.

## Chapter 3

### 3 Results

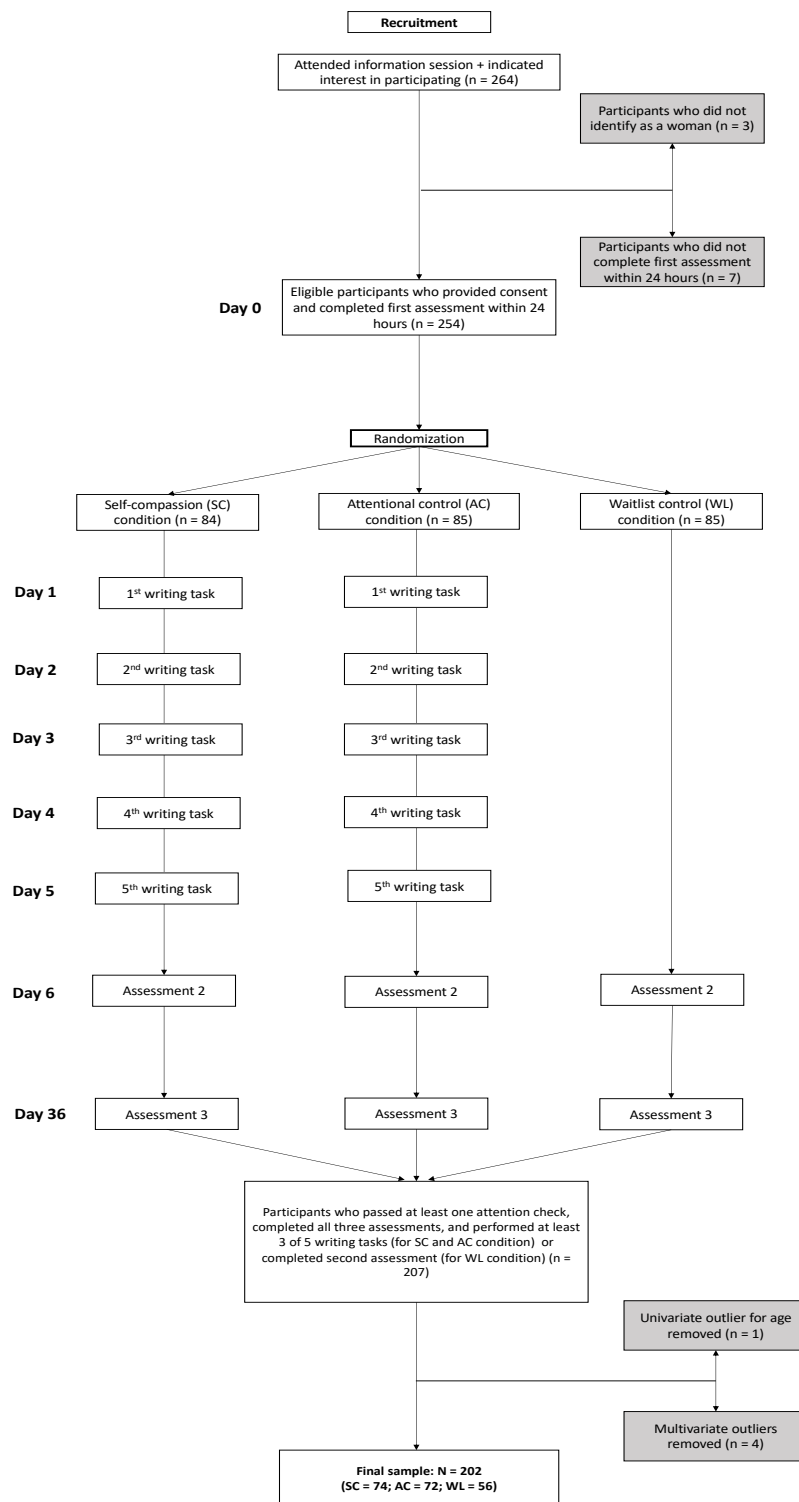
#### 3.1 Preliminary Analyses

Preliminary analyses and data screening were conducted in SPSS GLM Version 26 (IBM Corporation, 2016) to determine the number of participants in the dataset who passed at least one attention check at each time point and to assess whether the assumptions of the mixed MANCOVA were violated. Of the 254 participants who completed the baseline assessment, 207 participants passed at least one attention check at each of the three time points and were included in the preliminary analyses and data screening. Of these 207 participants, all participants completed the second and third questionnaire within 48 hours as per instructions, as well as completed at least 3 of 5 writing tasks (for the SC and AC condition). Figure 1 displays the flow diagram of the participants initially recruited and the final sample included in the analyses.

In addition, I conducted a fidelity check on the writing tasks to determine whether participants complied with the instructions of the first writing task. A trained undergraduate research assistant and I independently read each response for the first writing task in the SC and AC conditions. Only participants who completed at least three of five writing tasks were included. Engagement with the task was coded as “Yes” if the participant was clearly attempting to answer the question in detail and not writing about other topics that were unrelated to the task. All participants in the SC and AC conditions who completed at least 3 of 5 writing tasks were independently judged to be engaged with the first writing task. The written responses are coded more thoroughly with a coding scheme which is presented at the end of this thesis. Data screening and visualization were then conducted on the covariate measures at T1. The covariate measures (i.e., self-esteem, internalized weight stigma, and eating disorder

symptomatology) presented a normal distribution with skewness values ranging from .167 to 1.35 and kurtosis values ranging from -.491 to 1.13. These skewness values fell into the acceptable range of  $\pm 3$  for skewness and  $\pm 10$  for kurtosis (Kline, 2011). Age had a non normal distribution with a skewness value of 7.56 and a kurtosis value of 78.83, indicating the presence of extreme outliers for this variable. One participant was 29 years old, while the remaining participant's ages ranged from 17 to 23 years old. Past research has demonstrated that some aspects of women's body image tend to significantly improve with age (e.g., self-objectification; Tiggemann & Lynch, 2001). Therefore, I deemed this case potentially problematic and removed it, producing a skewness value of 4.10 and kurtosis value of 29.46 for the age variable. Although the skewness and kurtosis values for age were still not within the acceptable range of  $\pm 3$  for skewness and  $\pm 10$  for kurtosis, the assumption of normality in multivariate analyses only applies to the dependent variables and not the covariates (Curran et al., 1996).



**Figure 1***Flow Diagram of Participant Recruitment, Study Procedures, and Final Sample*

Data screening and visual examination of the dependent variables indicated normal distributions for all of the variables at each of the timepoints, with skewness values between  $\pm 3$  and kurtosis values between  $\pm 10$ . Although the broad conceptualization of beauty variable at T1 and T2 had kurtosis values between  $\pm 10$ , it had higher kurtosis values than the other dependent variables (actual kurtosis value was 3.42 at T1; actual kurtosis value was 4.70 at T2). The histogram at T1 and T2 for broad conceptualization of beauty revealed that most participants tended to endorse a broader conceptualization of beauty ( $M = 5.90$ ,  $SD = 0.71$ ). Larger kurtosis values sometimes occur from the presence of outliers in the data. An examination of the boxplot for broad conceptualization of beauty at T1 indicated eight outliers that were more than 1.5 interquartile ranges (IQR) below the lower quartile of the boxplot. Given these outliers ranged from 2.89 to 4.33 on a 7-point scale, a transformation of the variable was not applied, and no cases were removed at this point.

Similarly, an examination of the boxplot for broad conceptualization of beauty at T2 revealed that there were 10 outliers that were more than 1.5 interquartile ranges (IQR) below the lower quartile and one extreme outlier that was more than 3.0 IQR below the lower quartile. The scores for the 10 outliers ranged from 3.11 to 4.00. Given these scores seemed to represent natural variation in the scale, none of these cases were removed. One extreme outlier for this variable scored 1.00 on a 7-point scale. Before removing this participant, I also screened for the presence of multivariate outliers using Mahalanobis distance,  $p < .001$ , and closely inspected participant's responses with high Mahalanobis distance values at  $p < .001$  for any irregularities before removing them. This same participant that was identified as an extreme outlier for broad conceptualization of beauty at T2 also had the highest Mahalanobis distance value,  $p < .001$ . This participant scored 6.89 at T1, 1.00 at Time 2, and 6.78 at Time 3 on broad conceptualization of

beauty. Given the unlikelihood of these responses, this case was excluded from analyses. Six other multivariate outliers were detected. A detailed investigation of the responses to each of the scales for these six participants indicated that two participants selected only one option (e.g., ‘Strongly disagree’) to every item on the scale in each of the assessments, suggesting erroneous responding. Another participant that was detected to be a multivariate outlier scored very low on all of the measures at Time 3 (1.56 to 3.22) compared to the other participants. This participant was also removed from the dataset. I did not detect a non-normal pattern of responses for any of the other participants ( $n = 202$ ).

### 3.1.1 Missing Data Analysis

The percentage of total missing data that was missing for the 202 participants included in the analyses was 0.04% at T1, 0% at T2, and 3.06% at T3. At T1, the proportion of missing data for the mean scores on the dependent variables was 0%, indicating that mean scores on the dependent variables were observed for all participants at T1. At T2, the proportion of missing data was also 0%. At T3, the proportion of missing data was 0.02% for body shame, 0.03% for fear of self-compassion, 0.02% for body appreciation, 0.02% for broad conceptualization of beauty, 0.03% for self-compassion, 0.03% for SOBBS-F1, and 0.03% for SOBBS-F2. From the initial sample of 254 participants, the attrition rate from T1 to T2 was 5% (i.e., 13 participants did not complete T2) and the attrition rate from T2 to T3 was 15% (i.e., 37 participants did not complete T2 assessment but completed T1). Given that missing data for the MANCOVA is handled with a listwise deletion, the analyses were replicated using an LGM approach. LGM is advantageous as it handles missing data using full information maximum likelihood (FIML; Graham et al., 1996). Using this method, no observations were removed, and the model can still be estimated even if some participants were missing data at T3.

To explore whether missingness could be explained by other variables in the analysis, a binary variable was created for each of the dependent variables and three covariates (self-esteem, internalized weight stigma, eating disorder symptomatology) at Time 3 (1 = *missing*, 0 = *not missing*). I then conducted independent *t*-tests with scores for each variable at T1 as the dependent variable and the binary missingness variable at T3 as the independent variable. If the *t*-test was significant, this indicated that the missing data on the T3 variable was related to responses on a T1 variable. These significant “predictors” of missingness are important because they allow us to adopt a MAR (missing at random) scenario rather than a MNAR (missing not at random) scenario when using the FIML approach in LGM. The full sample ( $n = 254$ ) was used to conduct these analyses to elucidate which variables were associated with missingness over the three time points.

Three of the 10 *t*-tests were significant at  $p < .05$ . First, there was a small effect indicating that participants who were less self-compassionate at T1 ( $M = 2.69$ ,  $SD = 0.56$ ) were more likely to drop out of the study by T3 compared to participants who were more self-compassionate at T1 ( $M = 2.87$ ,  $SD = 0.53$ ),  $t(251) = -2.04$ ,  $p = .042$ , Cohen’s  $d = 0.34$ . Second, there was a small effect indicating that participants who were lower in self-esteem at T1 ( $M = 2.61$ ,  $SD = 0.43$ ) were more likely to drop out of the study by T3 compared to participants who were higher in self-esteem at T1 ( $M = 2.78$ ,  $SD = 0.50$ ),  $t(251) = -2.07$ ,  $p = .039$ , Cohen’s  $d = 0.36$ . Finally, there was a small effect indicating that participants who were higher in internalized weight stigma at T1 ( $M = 3.12$ ,  $SD = 1.15$ ) were more likely to drop out of the study by T3 compared to participants who were lower in internalized weight stigma at T1 ( $M = 2.72$ ,  $SD = 1.11$ ),  $t(251) = 2.20$ ,  $p = .029$ , Cohen’s  $d = 0.35$ .

### 3.2 Descriptive Statistics

Means, standard deviations, and bivariate correlations were calculated for the variables in the study at each of the three timepoints and within each condition. Table 4, Table 5, and Table 6 in Appendix H present the means and standard deviations for each dependent variables across all of the conditions and at each timepoint, and Table 7, Table 8, and Table 9 display the means and standard deviations for each dependent variable within each condition and at each timepoint. As shown in these tables, there was little variability in the means and standard deviations for each of the seven dependent variables across the conditions and over time. The zero-order correlations between the study variables were moderate to large. Self-compassion was positively associated with the affirming self-perceptions, and negatively associated with fear of self-compassion and the stigmatizing self-perceptions at all timepoints (see Table 4, Table 5, and Table 6 in Appendix H). On the other hand, fear of self-compassion was positively associated with the stigmatizing self-perceptions and negatively associated with the affirming self-perceptions at all timepoints (see Table 4, Table 5, and Table 6 in Appendix H). Additionally, the affirming self-perceptions were positively associated with each other and the stigmatizing self-perceptions were positively associated with each other at all timepoints. Attending the information session with a friend was unrelated to all study variables, with the exception of the small correlation between SOBBS-F2 and attending the information session at T3 ( $r = .17$ ). Continued engagement with the writing tasks at T3 was significantly positively associated with fear of self-compassion (T3), body shame (T3), SOBBS-F2 (T3), internalized weight stigma (T1), and eating disorder symptomatology (T1), and significantly negatively associated with self-esteem (T1) (see Table 6 in Appendix H). As such, continued engagement with the writing tasks was included as an additional covariate.

**Table 7***Means and Standard Deviations for Dependent Variables Across Conditions at Time 1 – Baseline*

Variable	SC (n = 60)	AC (n = 63)	WL (n = 50)	Scale Range
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	
SCS	2.83 (0.52)	2.85 (0.52)	2.94 (0.48)	1-5
FSC	2.38 (0.86)	2.25 (0.91)	2.33 (0.83)	1-5
PBSS	2.08 (0.88)	2.05 (0.98)	1.92 (0.77)	1-5
SOBBS-F1	3.86 (0.88)	3.72 (0.99)	3.59 (0.82)	1-5
SOBBS-F2	2.11 (0.80)	2.12 (0.81)	2.089 (0.75)	1-5
BAS-2	3.35 (0.68)	3.63 (0.77)	3.48 (0.61)	1-5
BCB	6.00 (0.74)	5.81 (0.74)	5.88 (0.67)	1-7

*Note.* *N* = 173 for participants in the MANOVA.**Table 8***Means and Standard Deviations for Dependent Variables Across Conditions at Time 2 – Post-Intervention*

Variable	SC (n = 60)	AC (n = 63)	WL (n = 50)	Scale Range
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	
SCS	2.86 (0.55)	2.86 (0.63)	2.98 (0.51)	1-5
FSC	2.39 (0.92)	2.18 (1.06)	2.33 (0.81)	1-5
PBSS	2.01 (0.86)	2.01 (1.02)	1.98 (0.74)	1-5
SOBBS-F1	3.74 (0.99)	3.65 (0.94)	3.62 (0.81)	1-5
SOBBS-F2	2.00 (0.85)	2.02 (0.88)	2.03 (0.70)	1-5
BAS-2	3.51 (0.71)	3.63 (0.84)	3.46 (0.61)	1-5
BCB	6.00 (0.72)	5.83 (0.86)	5.92 (0.65)	1-7

*Note.* *N* = 173 for participants in the MANOVA.

**Table 9***Means and Standard Deviations for Dependent Variables Across Conditions at Time 3 – One-Month Follow-Up*

Variable	SC ( <i>n</i> = 60)	AC ( <i>n</i> = 63)	WL ( <i>n</i> = 50)	Scale Range
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	
SCS	2.91 (0.56)	2.86 (0.65)	3.03 (0.49)	1-5
FSC	2.31 (0.90)	2.27 (1.02)	2.42 (0.77)	1-5
PBSS	2.11 (0.88)	1.99 (0.96)	1.97 (0.80)	1-5
SOBBS-F1	3.68 (1.03)	3.71 (0.92)	3.57 (0.84)	1-5
SOBBS-F2	2.04 (0.86)	2.06 (0.91)	2.00 (0.68)	1-5
BAS-2	3.47 (0.71)	3.64 (0.78)	3.46 (0.61)	1-5
BCB	5.98 (0.76)	5.80 (0.83)	5.88 (0.69)	1-7

### 3.3 Outcome Variables Without Covariates

A 3 (Condition: self-compassion, active control, or waitlist) X 3 (Time: T1-baseline, T2 – post-intervention, T3 – one-month follow-up) mixed model MANOVA was conducted to test the effect of Condition on the seven dependent variables. Box's *M* test of equality of covariance suggested that the assumption of homogeneity of variance-covariance was violated,  $F(462, 69789.10) = 1.16, p = .009$ . As such, Pillai's Trace was used to test for significant differences (Ateş et al., 2019). To verify that the three Condition means were equivalent due to random assignment at T1, I ran post-hoc tests using a Bonferroni correction at T1. There were no significant differences between the three conditions on any of the dependent variables at T1,  $p$ 's  $> .355$ . Thus, random assignment was largely successful across the conditions. The descriptive statistics for the dependent variables at T1 are presented in Table 4 in Appendix H.

The MANOVA revealed that there was no statistically significant effect for the Condition by Time interaction,  $F(28, 316) = 0.86, p = .672$ ; Pillai's Trace = 0.14, multivariate  $\eta_p^2 = .07$ ,

which indicated that there was no change in scores on the dependent variables over time across the conditions. There was also no main effect of Condition,  $F(14, 330) = 1.56, p = .087$ ; Pillai's Trace = 0.12, multivariate  $\eta_p^2 = .06$ , or Time,  $F(14, 157) = 0.97, p = .479$ ; Pillai's Trace = 0.08, multivariate  $\eta_p^2 = .08$ , on the dependent variables. Given no statistically significant effects were observed for the effect of Condition, Time, or the Condition by Time interaction, post-hoc analyses were not conducted.

### 3.2 Outcome Variables with Covariates

Another 3 (Condition: self-compassion, active control, or waitlist) X 3 (Time: T1-baseline, T2 – post-intervention, T3 – one-month follow-up) mixed model MANCOVA was conducted to test the effect of Condition on the seven dependent variables with age, self-esteem (T1), internalized weight stigma (T1), eating disorder symptomatology (T1), and continued engagement in the writing tasks (T3) entered as covariates. Similar to the first MANOVA, Box's  $M$  test of equality of the variance-covariance matrix was violated,  $p = .007$ , and Pillai's Trace values were used to test for significance.

The MANCOVA revealed no statistically significant Condition by Time interaction,  $F(28, 302) = 0.76, p = .806$ ; Pillai's Trace = 0.13, multivariate  $\eta_p^2 = .07$ . There was also no significant effect of Condition,  $F(14, 316) = 1.41, p = .142$ ; Pillai's Trace = 0.12, multivariate  $\eta_p^2 = .06$ , however there was a statistically significant effect of Time,  $F(14, 150) = 1.84, p = .038$ ; Pillai's Trace = 0.15, multivariate  $\eta_p^2 = .15$ , indicating that at least one dependent variable changed significantly over time. There was also a statistically significant effect of Time by Age interaction,  $F(14, 150) = 2.12, p = .019$ ; Pillai's Trace = 0.17, multivariate  $\eta_p^2 = .16$ , indicating that scores on at least one dependent variable changed over time as a function of age. In addition, most of the covariates were significantly associated with the dependent variables: age,  $F(7, 160)$



= 2.23,  $p = .034$ ; Pillai's Trace = 0.09, multivariate  $\eta_p^2 = .09$ , internalized weight stigma,  $F(7, 160) = 12.01$ ,  $p < .001$ ; Pillai's Trace = 0.34, multivariate  $\eta_p^2 = .38$ , self-esteem,  $F(7, 160) = 23.45$ ,  $p < .001$ ; Pillai's Trace = 0.51, multivariate  $\eta_p^2 = .51$ , and eating disorder symptomatology,  $F(7, 160) = 3.32$ ,  $p = .002$ ; Pillai's Trace = 0.13, multivariate  $\eta_p^2 = .13$ . There was no effect of continued engagement in the writing tasks on the dependent variables,  $F(7, 157) = 0.68$ ,  $p = .686$ ; Pillai's Trace = 0.03, multivariate  $\eta_p^2 = .03$ .

The within-subject effects for Time and the Time by Age interaction were examined. Mauchly's Test of Sphericity indicated that the assumption of sphericity had not been violated for any of the dependent variables,  $p > .101$ , except for SOBBS-F1,  $p = .009$ , and broad conceptualization of beauty,  $p = .046$ . Greenhouse-Geisser corrected values were used for all variables regardless of significance on Mauchly's Test of Sphericity to correct for any level of non-significance. To protect against Type I error for multiple ANOVAs being conducted, Bonferonni adjusted values of  $p < .007$  were used to test for significance ( $0.5/7$ ). Univariate ANOVAs revealed that there was a statistically significant small effect of Time on SOBBS-F1,  $p = .003$ ,  $\eta_p^2 = .04$ . There was also a statistically significant small effect for the Time by Age interaction on SOBBS-F1,  $p = .002$ ,  $\eta_p^2 = .04$ . The pairwise comparisons table for Time indicated that there was no significant change on SOBBS-F1 between the three pairs of timepoints (i.e., T1 vs. T2, T2 vs. T3, T1 vs T3), signifying that although there was a significant overall downward shift on SOBBS-1 across the conditions, but a significant difference was not observed between the specific timepoints (see Figure 2 in Appendix J).

Given that all of the covariates were significant with the exception of the continued engagement in the writing tasks variable, I examined the between-subjects effects to explore how each significant covariate influenced the dependent variables. Levene's test indicated that the

assumption of homogeneity of variance across conditions for each of the dependent variables had not been violated,  $p$ 's  $> .187$ . Tests of between-subjects effects revealed that scores on four covariates were significantly related to participant's responses on several of the dependent variables,  $p < .027$ . Age was significantly related to self-compassion,  $p = .004$ ,  $\eta_p^2 = .04$ , while internalized weight stigma was significantly related to all of the dependent variables at  $p < .001$ ,  $\eta_p^2 = .02$  to  $.19$ , except for self-compassion,  $p = .179$ ,  $\eta_p^2 = .02$ . Self-esteem was significantly related to phenomenological body shame,  $p < .001$ ,  $\eta_p^2 = .19$ , SOBBS-F1,  $p = .009$ ,  $\eta_p^2 = .04$ , self-compassion,  $p < .001$ ,  $\eta_p^2 = .37$ , fear of self-compassion,  $p < .001$ ,  $\eta_p^2 = .21$ , and body appreciation,  $p < .001$ ,  $\eta_p^2 = .30$ . Eating disorder symptomatology was significantly related to phenomenological body shame,  $p = .032$ ,  $\eta_p^2 = .03$ , fear of self-compassion,  $p < .001$ ,  $\eta_p^2 = .08$ , body appreciation,  $p = .006$ ,  $\eta_p^2 = .05$ , and SOBBS-F1,  $p = .012$ ,  $\eta_p^2 = .04$ .

These results were partially consistent with Hypothesis 3 and Hypothesis 4. There was a significant decrease in SOBBS-F1, but only when controlling for the covariates. This effect was significant even after a Bonferroni correction was applied, and the overall effect was downward across the three timepoints. In contrast, there were no significant changes in self-compassion, fear of self-compassion, or any of the other dependent variables regardless of controlling for the covariates. Thus, Hypothesis 1, Hypothesis 2, Hypothesis 5, and Hypothesis 6 were not confirmed.

### 3.3 Latent Growth Model

Given that MANOVA removes participants using a listwise deletion, 29 participants were excluded from each MANOVA. As such, supplementary analyses were conducted in Mplus 6.12 (Muthén & Muthén, 2012) using an LGM approach to inspect group differences in the longitudinal trajectories for each of the dependent variables. Conducting LGM with multiple

conditions for each dependent variable is comparable to conducting multiple split-plot ANOVAs, but LGM also provides estimated lines of best fit for the trajectories (i.e., trend lines analogous to polynomial linear trend in ANOVA) of each dependent variable. LGM tests whether the three different conditions have different slopes for the linear trajectories, which is comparable to the test of the condition by time interaction in MANOVA. Additionally, LGM in Mplus is advantageous as it uses maximum likelihood, a data estimation technique that uses all available data to achieve the best parameter estimates. All model parameters were also estimated using the Maximum Likelihood Robust (MLR) method. The “robust” signifies that the chi-square test and the standard errors of the parameters (and the tests of significance for each parameter) are adjusted for non-extensive departures from normality. Trajectories were estimated with all available data from 202 participants (rather than 173 participants in the MANOVAs) even when some participants had missing scores on the dependent variable of interest.

I used a multi-group approach to assess and compare the estimated trajectories for each dependent variable from baseline to post-test to one-month follow-up. Thus, there were three experimental conditions (SC, AC, WL) corresponding to the three groups in each model, and each condition model had its own intercept and slope for the linear trajectory of the dependent variable scores across the three time points. Given that the full sample was used, there were 74 participants in the SC condition, 72 participants in the AC condition, and 56 participants in the WL condition. The three time point intervals were scaled according to the number of days in between each point the dependent variable was measured (i.e., T1 (baseline) = 0, T2 (one week later) = 6, and T3 (one month after T2) = 36). I ran seven models, one for each dependent variable. For each model, age, self-esteem, internalized weight stigma, and eating disorder symptomatology were entered as covariates. Continued engagement with the writing tasks was

not included since it was not a significant covariate in the MANCOVA. Specifically, the scores on the dependent variable at each of the three time points were all regressed on to the four covariates. The regression coefficients for the covariates were held constant across conditions to minimize the complexity of the model and match the MANCOVA model, which did not demonstrate a condition by covariate effect.

Two latent factors were modelled for each dependent variable in each experimental condition: the intercept (initial status) factor, and the linear (slope) factor. The intercept represents the start point of the trajectory for each dependent variable. A significant intercept indicates that the baseline mean is significantly different from zero. The slope represents whether a linear trend across the three time points (with a positive or negative slope) of the trajectory exists. The slope also had a mean with a significance level that indicates whether a linear trend was present. In typical LGM models, additional parameters include the variance of the individual intercepts, the slopes, and a correlation between the intercepts and the slopes. Only the variance of the intercepts was modeled due to problems of non-convergence when modeling variance of the slopes. In models where the variance is very small, the models often do not converge. When the variance of the slope is omitted, there is also no parameter for correlation between the intercept and the slope. To test the hypotheses, the analyses included a test of significance comparing the slopes within each condition and between each condition.

Model fit was assessed for each dependent variable using the values specified by Hu and Bentler (1999): Comparative Fit Index (CFI) values should be .95 or higher; standardized root-mean square residual (SRMR) values should be .08 or less, and root mean square error of approximation (RMSEA) should be .06 or less. Meeting these guidelines indicates good fit for structural equation models. However, in LGM, the fit indices are influenced by how much the

**Table 10***Summary of Model Fit Indices for Each Latent Growth Model*

Dependent variable	$\chi^2$ (35)	<i>p</i> -value	CFI	RMSEA	SRMR
SCS	71.18	< .001	.94	.12 (90% CI = .08 to .17)	.18
FSC	51.23	.034	.97	.08 (90% CI = .02 to .13)	.11
Self-objectification – 'Internalized observer'	62.85	.003	.95	.11 (90% CI = .06 to .15)	.15
Self-objectification – 'Body as representing the self'	54.09	.021	.96	.09 (90% CI = .04 to .14)	.14
PBSS	39.57	.273	.99	.04 (90% CI = .00 to .10)	.10
BAS-2	26.55	.847	1.00	.00 (90% CI = .00 to .05)	.14
BCB	44.46	.131	.97	.06 (90% CI = .00 to .11)	.26

*Note.* SCS = Self-compassion Scale; FSC = Fear of Self-compassion Scale; PBSS = Phenomenological Body Shame Scale; BAS-2 = Body Appreciation Scale-2; BCB = Broad Conceptualization of Beauty Scale.

imposed linear trajectory overlaps with the observed linear trajectory. Essentially, model misfit in LGM indicates that there is most likely a deviation from the observed score and the line of best fit, and that the source of misfit is probably a result of individual scores deviating from the line of best fit.

Finally, to compare whether the trajectories for the three conditions were significantly different for each dependent variable, additional parameters were estimated to compare the slopes of the SC condition vs. the AC condition, the SC condition vs. the WL condition, and the AC condition vs. the WL condition.

### 3.3.1 Latent Growth Model Results

As shown in Table 10, most of the RMSEA and SRMR values did not meet recommended guidelines, indicating that individual scores likely deviated from the line of best fit. The significance levels for the intercepts and slopes of each dependent variable for each condition can be seen in Table 11, Table 12, and Table 13. Individual longitudinal trajectories by condition revealed that there was a small and significant linear decrease in SOBBS-F1 over time for the SC condition,  $b = -0.004$ ,  $p = .029$ , but not for the AC or WL conditions,  $p$ 's  $> .665$ . As shown in Figure 3 in Appendix I, SOBBS-F1 diminished slightly from T1 to T2, and the slope stayed relatively straight from T2 to T3. Additionally, there was a small linear increase in self-compassion over time for the SC condition,  $b = 0.002$ ,  $p = .041$ , but not for the AC or WL

**Table 11**

*Latent Growth Model Results for Compassion Variables with Condition as Grouping Variable*

	Self-Compassion			Fear of Self-Compassion		
	SC	AC	WL	SC	AC	WL
Intercept mean	2.82**	2.85**	2.94**	2.39**	2.24**	2.30**
Slope mean	0.002*	0.00	0.001	-0.002	0.002	0.004
Group difference (SC-AC)		0.002			-0.003	
Group difference (SC-WL)		0.001			-0.005	
Group difference (AC-WL)		-0.001			-0.002	

*Note.* \* $p < .05$ , \*\* $p < .001$ . SC = Self-compassion condition; AC = attentional-control condition; WL = wait-list control condition.

**Table 12***Latent Growth Model Results for Stigmatizing Self-Perceptions with Condition as Grouping Variable*

	Self-objectification – ‘Internalized observer’			Self-objectification – ‘Body as representing the self’			Phenomenological Body Shame		
	SC	AC	WL	SC	AC	WL	SC	AC	WL
Intercept mean	3.85**	3.67**	3.67**	2.13**	2.08**	2.05**	2.11**	2.00**	1.96**
Slope mean	-0.004*	0.001	-0.001	-0.001	-0.001	-0.001	0.002	0.00	0.001
Group difference (SC- AC)		-0.005			-0.001			0.002	
Group difference (SC- WL)		-0.004			0.00			0.001	
Group difference (AC- WL)		0.001			0.001			-0.001	

Note. \*  $p < .05$ , \*\*  $p < .001$ . SC = Self-compassion condition; AC = attentional-control condition; WL = wait-list control condition.

**Table 13***Latent Growth Model Results for Affirming Self-Perceptions with Condition as Grouping Variable*

	Body Appreciation			Broad Conceptualization of Beauty		
	SC	AC	WL	SC	AC	WL
Intercept mean	3.40**	3.61**	3.51**	5.95**	5.80**	5.94**
Slope mean	0.001	0.00	-0.001	0.001	-0.001	-0.001
Group difference (SC-AC)		0.001			0.002	
Group difference (SC-WL)		0.002			0.002	
Group difference (AC-WL)		0.001			0.00	

Note. \*\*  $p < .001$ . SC = Self-compassion condition; AC = attentional-control condition; WL = wait-list control condition.

conditions,  $p$ 's  $> .289$ . As shown in Figure 4 in Appendix I, self-compassion increased slightly from T1 to T2, and the slope was also relatively straight from T2 to T3. No other significant linear changes over time emerged for the other dependent variables. Although a significant result for these two variables was found at .05, given that I conducted seven tests, a smaller alpha level should be used. Using a Bonferroni correction of .007 (.05/7), there were no significant individual longitudinal trajectories by condition on any of the dependent variables. Finally, no significant differences were found between the SC condition and the AC condition, between the SC condition and the WL condition, or between the AC condition and the WL condition, on any of the dependent variables. As shown in Table 14, Table 15, and Table 16 in Appendix H, the correlations between the timepoints on the dependent variables were relatively high and positive,  $p$ 's = .41 to .91, indicating stability in rank order. The correlations between each of the timepoints and each covariate were also relatively consistent from T1 to T3. As seen in Tables 14 to 16 in Appendix H, the covariate correlations with the dependent variables over time did not change by more than .24.

The results revealed that Hypothesis 3 was partially confirmed. When controlling for the covariates, there was a small significant increase in self-compassion and a small significant decrease in SOBBS-F1 in the SC condition, but these results were not maintained over time. Participant's scores on the dependent variables were consistent across the three timepoints and within each condition regardless of their condition. However, when a Bonferroni correction was applied for conducting multiple tests, these effects were no longer significant.

### 3.4 Exploratory Analyses

I also explored each of the six components of self-compassion individually as a function of Condition and Time, using a separate MANCOVA with age, internalized weight stigma, self-



esteem, and eating disorder symptomatology as the covariates. There were 195 participants included in this MANCOVA when a listwise deletion was performed ( $SC = 71$ ,  $AC = 69$ ,  $WL = 55$ ). Box's  $M$  test of equality of covariance suggested that the assumption of homogeneity of variance-covariance had not been violated,  $F(342, 87260.34) = 1.03$ ,  $p = .359$ , and Wilk's Lambda was used to test for significance.

The MANCOVA revealed that there was no significant Time by Condition interaction,  $F(24, 354) = 1.03$ ,  $p = .433$ ; Wilk's Lambda = 0.87, multivariate  $\eta_p^2 = .07$ . There was also no significant main effect of Condition,  $F(12, 368) = 0.95$ ,  $p = .495$ ; Wilk's Lambda = 0.94, multivariate  $\eta_p^2 = .03$ , nor a significant main effect of Time,  $F(12, 177) = 0.83$ ,  $p = .624$ ; Wilk's Lambda = 0.95, multivariate  $\eta_p^2 = .05$ . Given that no effects were found, post-hoc analyses were not performed.

I examined whether these results would be replicated using LGM and the same approach described earlier in section 3.3. To test the hypotheses, the analyses generated a test of significance comparing the slopes for each condition and between each condition.

Individual longitudinal trajectories by condition revealed a small and significant linear decrease in overidentification for the SC condition,  $b = -0.006$ ,  $p = .002$ , as well as a small and significant linear decrease in isolation for the AC condition,  $b = -0.006$ ,  $p = .003$ . As shown in Figure 5 in Appendix I, there was a significant decrease in the slope for overidentification from T1 to T2 for the SC condition, but these effects did not diminish further from T2 to T3. Similarly, in Figure 6 in Appendix I, there is a significant decrease in the slope for isolation from T1 to T2, and the slope follows a straight line from T2 to T3. There was also a significant difference in the slopes between the SC condition ( $b = 0.002$ ) and the AC condition ( $b = -0.004$ ) on common humanity,  $p = .044$ , but the slopes for each condition were not significant. Despite

the significant findings, given that there is no evidence that either slope differs significantly from zero, there is little reason to presume the slopes are significantly different from each other. Finally, a Bonferroni correction should be applied since 13 tests were conducted. Using a significance cut-off of .004 ( $0.5/13$ ), the only statistically significant effect was the linear decrease in overidentification for the SC condition.

The exploratory analyses revealed that SC writing may influence some components of self-compassion, but not others. Overidentification was the only component of self-compassion that significantly decreased for the SC condition once a Bonferroni correction was applied. None of the compassionate self-responding components of self-compassion changed significantly within the SC, AC, or WL conditions. Although isolation was the only uncompassionate self-responding component that significantly decreased for the AC condition, this effect was no longer significant after a Bonferroni correction was applied.

### 3.5 Written Responses

To conduct a preliminary content analysis, a trained undergraduate student and I independently read and coded each response for the first writing task in the SC and AC conditions. Coding of the written responses for the first writing task only included participants who completed at least three of five writing tasks, as per the inclusion criteria stated earlier in the thesis. Four codes for the SC condition and three codes were created for AC condition. I provided the coding scheme to a trained undergraduate student who independently responded to each code. Each written response was coded with “Yes,” “No,” or “Not Sure.” For the SC condition, we coded for whether: (a) the participant was engaged with the task, (b) the event described was related to body shape/weight/body appearance, (c) the event was described as a negative (rather than positive) experience, and (d) the participant mentioned feeling too large or

that their weight was too high. For the AC condition, we coded whether: (a) the participant described at least one sociocultural appearance ideal for women, (b) the ideal they described was related to the body, and (c) they were engaged with the task. After independently coding the responses, the undergraduate research assistant and I discussed any discrepancies together until a consensus was reached for each code. Two unresolved discrepancies from this meeting were forwarded to a third coder, Dr. Rachel Calogero, who independently read the responses and helped arrive at a consensus. All of the responses for the first writing task were transcribed and coded; however, at this stage a systematic qualitative analysis has not been conducted. The written responses across the conditions provided rich data for analysis, and I do plan to analyze these responses in more detail at a later time. Sample responses that illustrate notable patterns within the written responses for each condition are presented below for descriptive purposes only.

### 3.5.1 Self-Compassion Condition Responses

Participants in the SC condition ( $n = 74$ ) wrote 10,510 words for the first writing task (“Describe an event that made you feel bad about your body”). All of the participants in the SC condition were judged to be engaged with the first writing task. Most participants ( $n = 70$ ; 95%) described an event for the first writing task that was related to their body shape, weight, or bodily appearance. Additionally, most participants in the SC condition wrote about the event from a negative perspective ( $n = 69$ ; 93%) and specifically mentioned that they thought their weight was too high and/or their body was too large ( $n = 48$ ; 65%). The events described by the SC condition participants in the first writing task varied in context and content. Several examples are presented below.

A number of events that were recalled involved family members commenting on the amount of food they were eating and the shape of their body during holidays and family get-togethers.

*“One time I felt bad about my body was during Thanksgiving dinner a couple of years ago...Everyone got served a piece of pie. After my first piece I decided I wanted a second piece, so I asked my mom to serve me a second. My aunt’s boyfriend said to me, ‘Are you really going to have seconds? That’s going to go right to your hips and make you fat. My daughter is fat, and she can’t keep a boyfriend to save her life.’ I instantly felt ashamed and uncomfortable in my body.”*

Other participants described the incessant body-related commentary from their family throughout their lives.

*“My family has always made fun of my body...When I lost some weight last year my mother was overjoyed. She asked me to weigh myself. She told me that I am now able to fit into clothes that were from my younger years. She complemented me on my looks. It was terrible. Growing up, I remember looking at the mirror and then turning and looking at myself from the side. I would pose like one does when they are arrested. In many ways I was. Except instead of life in prison, it was life in my own skin.”*

Another common theme for the event described was body-related comparisons.

*“Me and my friends were getting ready to go to a party. All of them were wearing crop tops, tube tops, and shorts and they looked nice in them. I kept realizing how different I looked in comparison. I am much bigger than they are so when I wear stuff like that, I*

*usually cover up more. It made me feel bad that I couldn't look that way or feel as confident."*

Other participants mentioned feeling self-conscious when scrolling through Instagram.

*"Something that has previously made me feel bad about my body and continues to make me feel bad about my body is social media...Influencers are usually very skinny/fit/tanned girls in bikinis posting on Instagram. I usually see these photos every day and multiple times per day when scrolling through my phone/on social media. This makes me feel very self-conscious and bad about my body because it makes me feel like I need to look like these girls on social media to be considered pretty."*

A smaller number of participants described feeling generally felt positive about their body and its appearance.

*"Uh to be honest I can't really think of anything in particular, I generally feel pretty good about myself. Sometimes when scrolling through social media, which is obviously filled with all these crazy beautiful girls, I feel as though I should start eating healthier, working out more, and taking care of my skin and hair in general more. I know I have a nice body though, and that I have no need to overstress about looking more generically attractive or anything like that. I am proud of my body for supporting me through all of my bad choices...I always try to remind myself that I have a lovely, healthy, functioning body that I find attractive...and that doesn't need to be any specific way to be considered 'better.'"*

Some participants wrote about events that were not related to their body's appearance but instead were related to feeling guilty about their food choices.

*"I chose a cheap slice of pizza over a healthier alternative. Not only that, but I also chose to eat cereal and milk late at night despite knowing that the amount of sugar that is in these cereals is terribly bad for my health."*

Finally, it was very common for participants to mention an event that was related to their body being too large and/or their weight was too high. For example:

*"In elementary school, specifically grades 4-6, I was repeatedly targeted for being overweight. Specifically, when I went to a cross country track meet as part of the 'running club' that I was in, I was the very last person running. Some older boys started cheering for me, and said that if I ran faster, they would give me donuts, as if food was the singular motivator to finish the track meet for me since I was 'fat.'"*

Although these sample responses do not provide a complete overview, I observed that almost all participants in the SC condition were able to describe a distressing event that impacted how they feel about their body. Participants also tended to show little self-compassion towards themselves, which is demonstrated by the critical nature and tone of many of these responses. It was also common for participants to describe events that made them feel like their weight was too high and/or their body was too large.

### 3.5.2 Attentional-Control Condition Responses

Participants in the AC condition ( $n = 72$ ) wrote 7,565 words for the first writing task ("What do you think the appearance ideal currently is for women?"). Compared to the SC

condition, participants in the AC condition wrote less words for the first writing task. All of the AC condition participants were judged to be engaged with the first writing task. Most participants in the AC condition described at least one sociocultural appearance ideal ( $n = 69$ ; 96%) and described an ideal that was related to the body ( $n = 68$ ; 94%).

Many participants mentioned that the current appearance ideal for women both thin and curvy.

*“I think the current appearance ideal for women is thin but curvy. People want a flat stomach and small waist, but they want an hourglass figure. Being very muscular is generally not the desired look for women but being “toned” is (especially legs and stomach). A very common desire for women currently is to have a ‘nice’ bum.”*

In addition to describing this ‘thin but curvy’ ideal, many participants acknowledged that this ideal was unrealistic for most women to obtain unless they had cosmetic procedures performed.

*“I think the ideal appearance currently for women is something that only surgery or cosmetic operations can create. This would be the curvy but skinny body that all ‘Instagram models’ have. Most of these women have big boobs, plump butts, lip fillers, Botox, etc. I believe this ideal appearance is rarely ever natural as most women have got some type of surgery done.”*

A few participants mentioned that that they think more body types are being accepted in society and in the media.

*“Right now, I think our society is going through a body positive movement. Instead of showing one “ideal” body type, which is stereotypically skinny, I’ve noticed the media displaying a variety of women who have all different body types. Like how Aerie started a campaign where women aren’t photoshopped, no matter what their body looks like, and their models come from different backgrounds and are all different shapes and sizes. So right now, I don’t think there’s one ‘ideal’ body type, but rather it’s more about embracing your body type and feeling confident about it.”*

In sum, the responses for the first task within the AC condition reflect awareness of the predominantly thin appearance ideal for women, and that curviness (or having fat) is only acceptable on certain areas of women’s bodies. Looking physically fit was considered to be attractive, but this was described in terms of being lean and having muscle in certain places rather than showing non-aesthetic evidence of strength or fitness. Notably, some participants observed that more diverse bodies are being accepted in media campaigns, and that the ideal body is only achievable through cosmetic procedures.

## Chapter 4

### 4 Discussion

Young women experience a variety of body-related events that redirect their attention to being socially evaluated based on their appearance (Bauer et al., 2013; Betz et al., 2019; Saunders et al., 2016). For example, women may encounter idealized images of other women on social networking sites (Betz et al., 2019), hear weight-related commentary about their body from family members (Bauer et al., 2013), or be catcalled in public (Saunders et al., 2016). These



events can lead many women to feel ashamed of their body, view their body as an object rather than subject, endorse narrow beauty ideals, and derogate rather than appreciate their body. Thus, the aim of this thesis was to examine the experimental effects of self-compassionate writing on self-compassion, fear of self-compassion, and a novel set of body-related self-perceptions that were both affirming and stigmatizing compared to an attentional-control and wait-list control conditions. In contrast to the few other studies that have investigated the effects of self-compassionate writing on body-related outcomes (Seekis et al., 2017; Ziemer et al., 2019), the results from this thesis revealed no significant effects of self-compassionate writing on body appreciation, and only very small effects of self-compassionate writing on self-compassion and the ‘internalized observer’ dimension of self-objectification.

Using an LGM approach to retain the full sample of participants, there was a small linear decrease in the internalization of an observer’s perspective over time for the SC condition, and a small linear increase in self-compassion over time for the SC condition, when controlling for the covariates. Using a MANCOVA approach, there was a significant effect of Time on the internalization of an observer’s perspective dimension of self-objectification, with a downward trend observed across the three timepoints. Thus, Hypothesis 3 and Hypothesis 4 were partially confirmed. The exploratory analyses using LGM also revealed a small linear decrease in overidentification for the SC condition and a small linear decrease in isolation for the AC condition. Notably, the only significant effect that remained after the Bonferroni correction was applied was the linear decrease in overidentification for the SC condition. Taken together, these findings suggest that a self-compassion focused writing intervention has the potential to increase women’s self-compassion and reduce self-objectification, but that a more potent and longer

intervention may be required for stronger and lasting effects on stigmatizing and affirming self-perceptions.

#### 4.1 Self-Compassionate Writing and Stigmatizing Self-Perceptions

According to objectification theory (Fredrickson & Roberts, 1997; Noll & Fredrickson, 1998), when a person's body is sexually objectified (e.g., catcalling; treated like merely a body), their attention is redirected to their appearance and how they look to others, and they may adopt this evaluative gaze on themselves and self-objectify (Calogero et al., 2011). Self-objectification can operate at the state-level and be activated in sexually objectifying encounters, and the trait level, whereby a person comes to habitually view themselves from an outsider's perspective in public and private environments (Calogero et al., 2011). The findings from this study demonstrated that a brief, week-long self-compassionate writing task has the potential to reduce the 'internalized other' dimension of self-objectification, but not necessarily the 'body representing the self' dimension wherein appearance attributes are valued over non-appearance attributes. These results suggest that the degree to which women treat their bodies as objects to represent themselves is less malleable and may require a longer period of self-compassionate writing to influence it. Additionally, it is also possible that diminishing this component of self-objectification requires a different and more directed strategy than self-compassion cultivation. For example, in Alleva et al.'s (2015), study, the researchers developed a program for young women to teach them how to focus on the functionality of what their body can do rather than their appearance and found significant decreases in women's self-objectification. Overall, the findings suggest that engagement in brief daily online self-compassionate writing for one week is

not sufficient for reducing self-objectification, and that it may be more difficult to reduce certain components of self-objectification using self-compassion.

Women's consistency in their levels of phenomenological body shame and the 'body as representing the self' dimension of self-objectification over the one-month period suggests that these are more entrenched forms of self-stigma that are difficult to change within one week. Past research has suggested that body shame may be more resistant to change than other aspects of negative body image and may require more lengthy intervention (Swan & Andrews, 2003; Toole & Craighead, 2016). Additionally, the correlations between the three timepoints across conditions for self-objectification and phenomenological body shame ranged from .41 to .90, which suggested stability in rank order. The high retest correlations for both of these variables indicate little fluctuation over the one-month period. Although none of the conditions influenced these variables, these findings do indicate high test-retest reliability for these variables. That is, women high in phenomenological body shame and self-objectification tended to keep endorsing these particular views of themselves over time, even after a short self-compassionate writing task.

## 4.2 Self-Compassionate Writing and Affirming Self-Perceptions

The nonsignificant effect of self-compassionate writing on body appreciation was not consistent with findings from some previous studies (Seekis et al., 2017; Ziemer et al., 2019). Participant's level of body appreciation was stable over time, and neither self-compassionate writing nor writing about appearance ideals influenced body appreciation in any direction. One explanation for these findings is that body appreciation did not increase because only very small gains in self-compassion were observed. Given that past research using self-compassionate writing has only found improvements in state body appreciation (Seekis et al., 2017) and in trait

body appreciation after a three-week period (Ziemer et al., 2019), another explanation for these findings is that self-compassionate writing interventions that are online may need to be longer than one week in order to observe any improvements in body appreciation. Modifications to the intervention might also improve the effectiveness of the intervention, which are discussed later in Section 4.3.

I also observed no change in broad conceptualization of beauty for women across time and between conditions. This is the first study to examine the experimental effects of a self-compassionate writing intervention on women's conceptualizations of beauty. I observed that women's scores on broad conceptualization of beauty were well above the midpoint of the scale at baseline and continued to be relatively stable over the one-month period (correlations between the timepoints ranged from .48 to .82). Indeed, the mean slopes for broad conceptualization of beauty across the conditions were extremely small ( $\pm 0.001$ ). Interestingly, broad conceptualization of beauty had the lowest intercorrelations with the other study variables at all of the timepoints, suggesting that even if women have a more accepting view of other women's bodies, they do not necessarily apply this degree of acceptance to their own bodies. The high mean score on this variable may also indicate the presence of a ceiling effect, which occurs when an independent variable does not have a meaningful effect on a dependent variable because scores on the dependent variable are already high. Another possible explanation for the high scores on broad conceptualization of beauty may be a social desirability effect. In the current era of body positivity, women may be more willing to report the endorsement of more diverse beauty ideals and broader conceptualizations of beauty than they are actually willing apply to themselves.

### 4.3 Self-Compassionate Writing, Self-Compassion, and Fear of Self-Compassion

In partial support of Hypothesis 3, I observed a small increase in self-compassion when a total score was used in the SC condition. Subsequent exploratory analyses using the six subscales revealed a significant decrease in overidentification for the SC condition, as well as a significant decrease in isolation for the AC condition. An important debate in the literature has been whether the six components of self-compassion operate in a synergistic way, whereby an individual develops compassionate self-responding by also reducing uncompassionate self-responding (Neff, 2003; Neff, 2020), or if only the compassionate self-responding items of the SCS should be used to measure the ‘true’ effect of self-compassion (Muris & Otgaar, 2020; Muris & Petrocchi, 2017). In her early work on the operationalization of self-compassion (Neff, 2003), and in a more recent commentary (Neff, 2020), Neff stands by her original conceptualization of self-compassion as a synergistic interaction between the six subscales of self-compassion, and that a total score of the SCS can be used to measure this synergistic state. However, if researchers and clinicians are interested in the mechanistic components of self-compassion (e.g., “how learning self-compassion impacts body image”; Neff, 2020), it is also appropriate to examine the six subscales. In her view, protection and vulnerability go hand in hand, and that by decreasing vulnerability (i.e., uncompassionate self-responding), a person also increases their protection from harm (i.e., compassionate self-responding). Conversely, Muris & Otgaar (2020) argue that that the compassionate and self-compassionate responding items of the SCS operate differently and are not related, and that by using a total score for the SCS, the reported effects of increases in ‘self-compassion’ are inflated by the reductions in uncompassionate self-responding rather than an increase in compassionate responding.

It is difficult to conclude how the present findings correspond with these opposing views because the effects found for overidentification and isolation were so small. An alternative explanation is that for significant increases to be observed in the compassionate self-responding components, there would need to be a significant decrease in the uncompassionate responding first. For example, it may be easier for individuals to decrease their level of rumination about a specific event within a one-week period before approaching it mindfully. This explanation aligns with the decreases in overidentification observed in the SC condition, but no significant increase observed for mindfulness. What could be concluded is that self-compassionate writing seems to be effective for reducing the overidentification component of self-compassion, a pattern which is also supported by a recent meta-analysis that investigated the effects of self-compassion RCT's and found that the strongest effects of these RCT's was for overidentification (Ferrari et al., 2019).

An interesting and unexpected finding was that for the AC condition, isolation significantly decreased. Participants who wrote about various appearance ideals tended to feel less alone and separated from others when feeling distressed. An explanation for this finding is that perhaps by writing explicitly about appearance ideals that all women are pressured to obtain, participants were reminded that all women face similar distress when confronted with unattainable body and appearance expectations. However, the common humanity component of self-compassion that corresponds to less isolation did not significantly increase. In fact, common humanity decreased as well in the AC condition, although this trend was not significant. As such, it may be that when women are reminded of appearance ideals and write about them, they initially feel less self-pity, but they do not significantly feel that their experience is the same as other women.

Engagement in self-compassionate writing also did not affect fear of self-compassion. The presence of fear of self-compassion, rather than low self-compassion, has been shown to predict worse treatment outcomes for women with eating disorders (Kelly et al., 2013). Given that fear of self-compassion is theorized to stem from adverse childhood experiences or a lack of receiving compassion during critical development periods (Gilbert, 2007; Gilbert & Procter, 2006), it makes sense that reducing fear towards self-compassion may take more time and be particularly challenging to change for some individuals. Rather than focusing solely on cultivating self-compassion, self-compassionate writing interventions may need to specifically target the fear towards self-compassion that sometimes accompanies low self-compassion in order to demonstrate lasting effects of the intervention on stigmatizing and affirming self-perceptions.

### 4.3 Future Directions of the Intervention

There are several possible explanations for the overall null findings. One explanation is that when the self-compassion writing tasks were completed over several days, the intervention itself was simply not potent enough to produce changes over time on self-compassion, or on the stigmatizing and affirming self-perceptions within the one-week period. Although the instructions for the self-compassion writing prompts in this study were based on prior self-compassionate writing prompts (e.g., Neff & Germer, 2018; Ziemer et al., 2019), the procedure for our study was slightly different from previous research. Participants in this study wrote about a distressing body-related event on the first day, and then for the next three days we narrowed the writing prompts, with participants completing one writing task per day that was based on a specific component of self-compassion (i.e., self-kindness, common humanity, mindfulness). On the last day, participants were instructed to apply what they had learned in previous days and

write about a new distressing event in a self-compassionate way. This is in contrast to other studies where participants performed self-compassionate writing tasks that focused on all three components of self-compassion simultaneously within one 15- to 20-minute period. For example, in Ziemer et al. (2019) study, participants wrote about their feelings toward their body image for 20 minutes per week for three consecutive weeks using the three components of self-compassion in each 20-minute session. The authors found gains in self-compassion for the self-compassion condition when compared to a traditional expressive writing condition and a control condition. In Seekis et al.'s (2017) study, participants wrote for 15-minutes using the three components of self-compassion, and they found improvements in state-level body appreciation and body satisfaction. Thus, it is possible that gains in self-compassion are more robust and occur more quickly when the three components of self-compassion are taught to participants all at once and together rather than separated from each other.

A second explanation is that the instructions for the self-compassion task in this study were slightly different from previous studies because I aimed to reduce subject-expectancy effects that may be accounting for some of the effects in previous studies. Subject-expectancy effects can occur when a research participant expects a result and that expectation influences the outcome of the study. A single-blind methodology is one way to minimize this effect. In the current study, participants were instructed in the information session that they would be randomly assigned to one of three conditions (i.e., write about academic-related stress, appearance-related stress, or relationship-related stress). Thus, even when participants were assigned to the SC condition or the AC condition, they were led to believe that other participants in the study were writing about either academic or relationship-related stress, and that the focus of their writing happened to be about appearance-related stress. Although participants in the SC



and AC condition were actually both writing about appearance, participants in the SC condition were blind to the true purpose of their writing (i.e., self-compassion), which was not ever mentioned to any of the participants. This single-blind methodology is different than what has been used in previous studies. For example, in Ziemer et al.'s (2019) study, participants in the self-compassionate writing condition were instructed to write about their body image “from a self-compassionate perspective” and they were also provided with a definition of self-compassion each time that they wrote. As such, it is possible that in order for self-compassionate writing to increase self-compassion at the trait-level and influence other outcomes further downstream, participants may actually need to be told the true purpose of the writing that they are engaging in.

A third explanation is that the event that participants were told to write about on the first day of the writing tasks was not standardized. Although all eligible participants were actively engaged in the writing tasks, participants in the self-compassion condition were instructed to, “describe an event that made [them] feel bad about [their] body,” and there was variation in the types of situations that participants described. Most participants described an event that was related to their body or its appearance, but some participants discussed feeling guilty about eating certain foods and health anxiety. Additionally, while most participants mentioned feeling too large or that their weight was too high, some participants mentioned that they felt their body was too small or too skinny. Although the writing prompt was broad and seemed to encourage a range of lived experiences, it may be the case that self-compassionate writing is effective for some body-related experiences, but not others, which is why significant effects of the intervention did not emerge.

A fourth explanation is the use of trait-level measures of self-compassion and the stigmatizing and affirming self-perceptions in this study, whereas other studies have used state-level measures to assess their outcomes (e.g., Moffit et al., 2019; Seekis et al., 2019; Stern & Engeln, 2018). Typically, studies interested in state-level outcomes include experimental manipulations that are only about 15 minutes or less in length (Moffit et al., 2019; Seekis et al., 2019). Given the interest in entrenched forms of self-stigma, self-affirmation, and general self-compassion within this thesis, I did not measure state-level variables. On the one hand, this focus is a strength of the thesis, as it makes a novel advance to the literature on the effectiveness of self-compassionate writing on these trait-level outcomes. On the other hand, it may have been possible to observe an effect of self-compassionate writing at the state-level on the days that participants completed the specific writing tasks. For example, self-kindness may have been higher on the day that participants completed the self-compassionate writing task that was aimed at cultivating self-kindness. Daily assessments following the writing intervention were not included in the present design.

A final explanation is that writing about appearance-related distress and engaging in self-compassionate writing online using a keyboard may not be as effective as handwritten responses. The online modality used in this study allowed for recruitment of many participants and reduced participant burden because the writing tasks were easily accessible, convenient, and could be done from anywhere with WiFi access. The online modality enhanced the ecological validity of the study because participants were able to complete the writing tasks in a setting that was natural to them rather than in a lab. To my knowledge, there are no studies that have explored the effectiveness of online self-compassionate writing compared to self-compassionate handwriting (at home or in the lab). However, when compared to keyboard typing, handwritten notes have

been shown to increase academic achievement (Aragón-Mendizábal et al., 2016), produce essays with more personal and psychological information (Sharp & Hargrove, 2004), and stimulate the reticular activation system in the brain, which is responsible for increased focus and attention (Akkaraju, 2018). Handwriting has also been proposed as an effective means to give ‘voice’ to an individual’s experience and encourage ‘reflection and revelation’ (Boone & Castillo, 2008; Ramsey-Wade et al., 2020; Robbins & Pehrsson, 2009). Perhaps the online modality of the writing did not encourage participants to reflect on their responses, or some participants only perceived the writing tasks as a way to fulfill course credit. An interesting next step would be to compare the effects of different modalities of self-compassionate writing on any outcomes of interest that vary handwritten versus digitally written modes of writing about the self in a compassionate way.

#### 4.4 Why Use Self-Compassionate Writing at All?

In a recent meta-analysis that examined the effects of self-compassion interventions on disordered eating and body image, self-compassionate writing emerged as a popular method used to cultivate self-compassion in order to improve body image in non-clinical samples of women (Turk & Waller, 2020), while a few other studies used mindfulness meditation (Albertson et al., 2015; Toole & Craighead, 2016). Cultivating self-compassion appears to be relevant to diminish negative and distressing outcomes, and to improve psychological health. For instance, medium to large effect sizes have been observed for the inverse relationship between self-compassion and psychopathology (Macbeth & Gumley, 2012), for the inverse relationship between self-compassion and procrastination (Sirois, 2014), and for the positive relationship between self-compassion and general well-being (Zessin et al., 2015). Given the wide range of applicability, it is possible that by cultivating self-compassion in one domain, the effects of self-compassion may

spill over into other domains and distressing situations. In addition, using self-compassionate writing may be a cost-effective tool to learn the three aspects of self-compassion and how to apply them to various situations because reflecting on emotional regulation in writing has been shown to increase a person's emotional intelligence (Wing et al., 2006). The written responses in this thesis demonstrated that participants conveyed distress, a lack of self-compassion, and a lack of receiving compassion from others. Thus, by learning to activate self-compassion using reflective writing, a person may be able to identify their emotions more easily and identify specific instances where they can employ self-compassion, even in uncontrollable situations where they do not receive compassion from others.

In another recent meta-analysis, which explored the effectiveness of randomized controlled trials (RCT) aimed at cultivating self-compassion in a number of contexts, Ferrari et al. (2019) concluded that there was too much diversity in intervention type to examine if one kind of intervention was superior to another at cultivating self-compassion. However, using writing rather than mindfulness meditation to cultivate self-compassion in an online study may be advantageous for several reasons that relate to delivery and execution of the intervention. The most obvious reason is that using an online methodology to deliver a mindfulness meditation study makes it difficult to know whether participants are actually meditating. In contrast, online self-compassionate writing tasks produce written evidence that participants actually engaged in the intervention. Participants are also able to review and reflect on their responses, which is more difficult to do with meditation.

Another reason is that it may be difficult for people to actively engage in meditation, especially non-practitioners. For example, in the two studies that used self-compassion focused meditations in the context of body image, adherence and compliance with the meditation was

very low, and participants complained that the meditations were too long (Alberston et al., 2014; Toole & Craighead, 2016). In contrast, completion of the writing tasks in the present study was high and the attrition rate was low. Thus, self-compassionate writing may be easier for some participants to engage in, but they may need to perform writing tasks for a longer period of time in order to observe larger effects at the trait-level.

A final reason is that body image concerns and disordered eating are often tied to traumatic experiences (e.g., targeted weight stigma, childhood adversity) (Breland et al., 2018; Mitchell et al., 2012) and individuals exposed to body-related trauma may have difficulty with the focus on body-awareness that mindfulness meditation requires (Compson, 2014). Despite these potential advantages, there is no scientific evidence that self-compassionate writing is more effective than self-compassion meditation on the body-related outcomes included in this study. Future research should seek to explore the effectiveness and perceived acceptability of self-compassionate writing compared to self-compassion focused meditation for women's body image.

## 4.5 Limitations

One important limitation to mention is that I did not recruit participants who had a high level of body concerns and/or were actively seeking help with these concerns. It is possible that a sample that specifically reported more body concerns and distress would benefit more from self-compassion training. Women in this sample at baseline had a mean score that was below the midpoint of the scale on body shame, the 'body as representing the self' dimension of self-objectification, fear of self-compassion, and weight bias internalization, and above the midpoint of the scale on self-compassion, body appreciation, and broad conceptualization of beauty. The mean score for broad conceptualization of beauty was particularly high, which could indicate

that the sample actually had a broader acceptance of beauty ideals or that they were high in social desirability. Overall, this is an encouraging observation that women generally reported more positive body image. Future research may benefit from exploring the use of self-compassionate writing on these variables in a sample that is higher in negative body image and actively seeking help with these concerns.

Given the composition of the sample, these findings are not generalizable to more diverse populations and cultures. The present research was limited in that I used an undergraduate sample of women who participated in the study for course credit. Although body image concerns and disordered eating are more prevalent among young women (Pritchard, 2008), the sample was predominantly White, and their socioeconomic status was middle to upper class. There was also little cultural diversity within participants in the sample. Recent research suggests that some of the variables included in this study (e.g., self-objectification, body shame) operate differently in women depending on ethnicity (Schaefer et al., 2018) and that a person's culture may be related to how they perceive and give meaning to body and appearance ideals (Bhatti, 2018). However, it is unclear how self-compassion operates in the context of women's body image across various cultures and ethnicities. Thus, it is necessary to explore whether self-compassionate writing may be more or less effective for women belonging to different ethnic groups, varying socioeconomic statuses, and various cultures.

A final limitation that was mentioned previously is that the instructions for the task (i.e., "describe an event that made you feel bad about your body") were very broad, which produced variation in the open-ended responses for this question. Feeling "bad" about one's body can be interpreted in a variety of ways depending on the person. It would be important to determine for which types of body-related events self-compassionate writing is more relevant for and who is

more likely to benefit from this type of intervention. For example, research suggests that people who have experienced weight-based discrimination show greater biochemical stress (Tomiya et al., 2014). The amount of distress experienced from weight stigma may be different from those who have experienced “skinny-shaming” or feeling guilty for eating foods that are perceived to be unhealthy compared to people living in larger bodies who are shamed for being fat. As such, in order to elucidate which types of body-related events may benefit most from a self-compassion intervention, it may be useful for future research to recruit participants based on similar body-related experiences.

## 4.6 Conclusion

Body image concerns are highly prevalent among young women. Given the robust cross-sectional link between self-compassion and body-related outcomes, I hypothesized that self-compassionate writing would have the potential to increase women’s self-compassion and affirming self-perceptions and reduce their fear of self-compassion and stigmatizing self-perceptions. I included novel dependent variables that have been understudied in the context of self-compassion cultivation interventions. Contrary to the hypotheses, the findings from this study demonstrated that a week-long daily self-compassionate writing intervention was not potent enough to influence most of the stigmatizing and affirming self-perceptions, and only small effects were found for self-compassion and one dimension of self-objectification. For more entrenched self-stigma and self-perceptions of the body, women may need a longer and more intensive self-compassion intervention. Women reporting higher body image distress may also need to be targeted in order for self-compassionate writing to have an impact. Alternatively, it would be important to examine whether reducing fear of self-compassion explicitly would have an impact different from and above cultivating self-compassion. The online format of the

intervention has the potential to reach a large number of women experiencing body-related concerns, and future research should continue to explore the viability of self-compassionate writing on these variables through a variety of online formats over longer periods of time.



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## Appendices

### Appendix A: Study Approval from Western Non-Medical Research Ethics Board



**Date:** 23 September 2019

**To:** Dr. Rachel Calogero

**Project ID:** 114225

**Study Title:** Daily Writing and Stress for University Women

**Application Type:** NMREB Amendment Form

**Review Type:** Delegated

**Full Board Reporting Date:** October 4, 2019

**Date Approval Issued:** 23/Sep/2019

**REB Approval Expiry Date:** 30/Aug/2020

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Dear Dr. Rachel Calogero,

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the amendment, as of the date noted above.

**Documents Approved:**

Document Name	Document Type	Document Date	Document Version
scalelist_MSthesis	Online Survey	23/Sep/2019	1

REB members involved in the research project do not participate in the review, discussion or decision.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Kelly Patterson, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

*Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).*



## Appendix B: Online SONA Recruitment Advertisement

## SONA Recruitment Advert

**Study Title:** Daily Writing and Stress for University Women

You are invited to participate in a study investigating the relationship between writing daily and stress in university women. You will be asked to attend a 15-minute information session to learn more about what the study entails, and then you will participate in three surveys and write daily for five consecutive days. In this study, we are recruiting female-identified students only. Participation involves participating in three surveys that are each 20 minutes long. You will also write daily for 10 minutes for five consecutive days. You will be granted 3.0 SONA credit for your time. You will need to be a female-identified university student who is at least 17 years old and can speak and write fluently in English to participate.

If you have questions about this study, please contact:

Katarina Huellemann, MSc Thesis Student, Department of Psychology, Western University

Email: [REDACTED]

Phone: [REDACTED]

Rachel Calogero

Principal Investigator, Department of Psychology, Western University

Email: [REDACTED]

Phone: [REDACTED]

## Appendix C: Information Session Script

**Slide #1** - Hi everyone. Thank you for signing up for this study and taking the time to come to the information session today. This study will be on Daily Writing and Self-Care. My name is XX and I am one of the researchers conducting this study. I will give you a minute to write write down my contact information written on this slide as well as the Principal Investigator's, Dr. Rachel Calogero, in case you have any questions during the study or choose to withdraw participation.

**Slide #2** – Because this is a longitudinal study, the purpose of this information session is to tell you more about the topic of this study, which is related to stressful situations for university women. It will also orient you towards what is expected of you to do during this study and the study procedure. We will also discuss the assessment delivery and instructions. Finally, you will have 24 hours to complete the first assessment after the end of this session.

**Slide 3** – To begin, we will briefly discuss various stressors that are common to university women. Many of you have probably experienced distressing events related to one or all of the following topics. For example, if you have experienced stress after receiving a poor grade on an assignment, this would be considered academic-related stress. Similarly, if you experienced some event that made you feel bad about your body shape, weight, or appearance, this would be considered appearance-related stress. Finally, if you experienced some sort of conflict with a friend, family member, or peer, this could be considered relationship-related stress.

*People differ in how they respond to these stressors and may have different reactions to them. Providing university women with tools or resources to take care of themselves during stressful events may help women effectively navigate these stressors and cope with emotions that may result from them.*

**Slide #4** - One tool that women may be able to use to cope with these stressors is writing daily which will be the focus of your participation in this study. I will first walk you through the specifics of what will be required of you to complete these modules, how long you will participate for, and then I will demonstrate some sample questions you may be asked and what type of answers we are looking for.

**Slide #5** - Everyone will be randomly assigned to write about one of the domains I spoke about earlier for 5 days. On each day in the morning, you will receive an email link to a writing task. All 5 writing tasks will be only on one of the topics described earlier, and in total you will complete the 5 writing tasks over the course of 5 days.

**Slide #6** - It is important to mention that we do not expect you to take any longer than 15 minutes each day on the writing task given to you. In fact, we expect that it will only take you about 10 minutes to respond to the question given to you in the writing task. We ask that while completing the task, you are in a quiet space where you can focus and do not anticipate distractions for 10 minutes.

In addition to these writing tasks, you will participate in three surveys. The first will be emailed to you after this information session, and you will have 24 hours to access it and participate in it. The second will be emailed to you after the last writing task (so 6 days from now), and the last

survey will be emailed to you one month after the second survey. Each morning you will be sent the link to the writing task, as well as a reminder email to participate in it later that day. Click on the link and it will take you to the writing task. Please read the question and write in the text box to answer the question. Try to write for at least 10 minutes.

**Slide #7** – I have provided some example prompts of what you may be asked to respond to, depending on the condition that you are randomly assigned. Here is an example of some questions pertaining to academic stress: “Think about and describe below if your grades have changed from grade 12 to university” and “Why do you think it is important (or is not) to achieve high grades in university and how do you feel about your progress thus far?”

As you can see, I have provided some examples of the types of answers we are looking for. Think about your feelings and emotional response to the question, as well as answering the question as honestly as possible.

**Slide #8** – Here is some examples for questions pertaining to appearance-related stress: “Describe an event made you feel bad about your body shape or weight” and “Think of friends, family, or peers that have had a similar experience to what you described in the first task. Describe what they experienced and how that is similar to what you experienced”. Again, try to answer the questions as honestly as possible, read the question carefully, and think about the situation and what emotions were felt.

**Slide #9** – Finally, here are some example questions for relationship-related stress: “Think about and describe a relationship conflict in the past few months” and “Why do you think it is important (or not important) to make time for family, friends, and loved ones?”. I have provided some example responses here as well which are similar to the previous question prompts.

**Slide #10** – Before we end the presentation, I want to inform you of the compensation that you will receive by participating in this study.

By attending this lecture and participating in the first survey, you will obtain 1.0 SONA credits.

By participating in the writing tasks and completing the second survey, you will obtain 1.5 SONA credits.

By completing the third survey in the one-month follow up, you will obtain 0.5 SONA credits.

Therefore, by participating fully in this study, you can obtain up to 3.0 SONA credits.

In addition, if you complete all 5 of the writing tasks, you will be entered into a draw to win a \$25.00 Starbucks giftcard.

**Slide #11** – Finally, let’s review what we are looking for by participating in this study. We’d really love to hear about your experiences in the domains described and personal events that occurred that are related to them when asked. We encourage honest responding, as your responses will be fully confidential.

We also are really interested in your opinions. Feel free to be as direct as possible when answering questions that ask you about your opinion on various topics.

We of course are also looking for your engagement and participation with the study. As this is a study on self-care in university women, your participation in this study can help us better understand why women take care of themselves while others do not. By agreeing to participate, you are agreeing to participate in the writing tasks and engage with the exercises so that our data is meaningful, and we can address our research questions accordingly. Of course, we also want to remind you that you have the right to withdraw consent for any reason at any time without academic penalty. Simply contact me by email and I can withdraw you from the study.

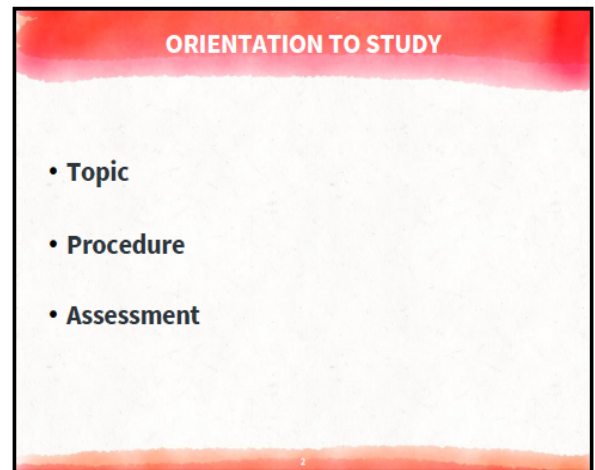
**Slide #12** – I want to thank you all for listening and remind you that if you do wish to participate, look out for an email later today that will provide a link to the first survey, which you must complete in 24 hours to participate in the full study. Please read the Letter of Information carefully before beginning the first survey. By completing this survey and coming to this information session, you will obtain 1.0 SONA credits.

**Slide #13** – We have now reached the end of the information session. If there is something that you do not understand, please feel free to ask a question or email me. Are there any questions?

## Appendix D: Information Session PowerPoint Slides



1



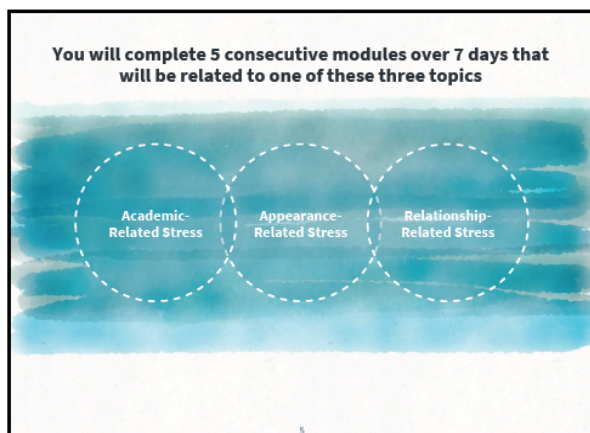
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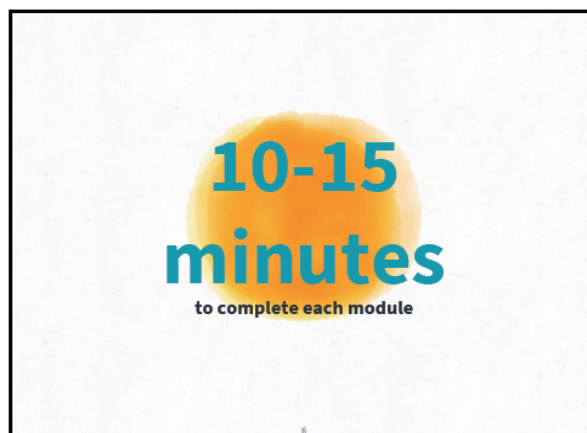
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4



5



6

**EXAMPLES OF MODULE PROMPTS**

Think about and describe below if your grades have changed from grade 12 to university.

- indicate if yes/no they have changed, what subjects
- describe the extent to which they have changed

Why do you think it is (or is not) important to achieve high grades in university and how do you feel about your progress thus far?

- think about your own goals or others' goals for you
- think about why it might (or might not) be beneficial
- think about your emotions when trying to meet expectations

7

7

**EXAMPLES OF MODULE PROMPTS**

Describe an event that made you feel bad about your body shape or weight.

- describe emotions at the time when event occurred, what happened, the setting
- can be about the way you look, food you ate, etc.

Think of friends, family, or peers that have had a similar experience to what you described in Module 1. Briefly describe what they experienced that is similar to what you experienced.

- what emotions they had at the time (or emotions you think they *may* have had)
- list other people

8

8

### EXAMPLES OF MODULE PROMPTS

Think about and describe a relationship conflict in the past few months.

- can be a conflict with a friend, significant other, family member
- describe what happened and the emotions you felt

Why do you think it is important (or not important) to make time for family, friends, and loved ones?

- think about how these people impact your well-being
- can describe specific people and how they improve (or do not improve) your life

9

### SONA Credits

- ▶ Attending this information session and participating in the first survey = 1.0 SONA credits
- ▶ Participating in the writing tasks and the second survey = 1.5 SONA credits
- ▶ Participating in the third survey = 0.5 SONA credits
- ▶ In total, up to 3.0 SONA credits can be obtained
- ▶ If you complete all 5 writing tasks, you will be entered into a draw to win a \$25.00 Starbucks giftcard

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### LET'S REVIEW WHAT WE'RE LOOKING FOR



**Your experiences**

We want to hear your personal account of an event(s) which relates to the topic at hand when asked. Simply review what the question is asking of you and answer honestly.



**Your opinion**

We want to hear your personal opinion on a topic when asked. Feel free to be as honest and direct as possible. Your answers are anonymous, confidential, and can not be relayed back to identify you unless another or yourself may be harmed.




**Your participation**

You have the right to withdraw consent for any reason without academic penalty. By agreeing to participate, we urge you to complete all the modules and be fully engaged with the exercises so our data is meaningful and we can address our research questions.

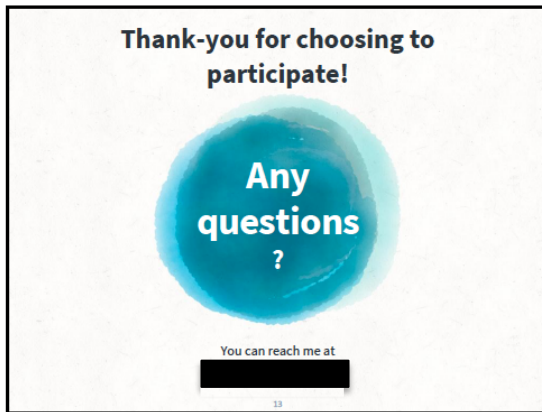
11

### \*REMINDER\* CHECK YOUR EMAIL!

You will receive a link via email today to complete a survey. The day after tomorrow you will receive a link in the morning to complete your writing tasks on Qualtrics.



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## Appendix E: Letter of Information and Consent Form



Psychology

**Letter of Information and Consent****Project Title:** Daily Writing and Stress in University Women**Researchers:**

Rachel Calogero, PhD. (Principal Investigator)

Email: [REDACTED]

Phone: [REDACTED]

Katarina Huellemann, MSc. Student

Email: [REDACTED]

Phone: [REDACTED]

**1. Invitation to Participate**

Participants are invited to participate in a research study that will be conducted under the direction of Dr. Rachel Calogero, Ph.D., and Katarina Huellemann, MSc student, from the Department of Psychology at Western University.

**2. Purpose of this Letter**

The purpose of this letter is to provide participants with information in order to allow them to make an informed decision regarding participation in this research.

**3. Purpose of this Study**

We are interested in investigating the relationship between writing daily about university-related stress and psychological outcomes in university-aged women.

**4. Inclusion Criteria**

In order to participate, participants must be at least 17 years old, be able to read and write fluently in English, and identify their gender as a **WOMAN/FEMALE** with access to SONA.

**5. Exclusion Criteria**

Participants will be excluded if they do not meet the criteria listed above.

**6. Study Procedures**

In this multi-part study, participants who express interest in the study will attend an information session to review the study requirements and tasks, and provide their email and SONA ID if they wish to participate. Participation will involve completion of a short 10-minute writing task for five consecutive days. In addition, participants will complete a survey on three occasions. The writing tasks and the surveys will be delivered via email and completed through Qualtrics.

The first survey will be sent for completion within 24 hours of the information session. In this first survey, participants will also read this Letter of Information and provide

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informed consent. The writing tasks will be sent on consecutive days following the completion of the first survey. The writing tasks can be completed any time during the day. Participants will then complete the second survey within 24 hours of completing the writing phase, and the final survey will be completed four weeks after completion of the writing phase. The surveys contain questions about experiences and current attitudes and beliefs related to themselves and university life. Each survey should take no longer than 30 minutes to complete.

### **7. Possible Risks and Harms**

If participants provide consent to participate, none of the questions in the surveys expose participants to subject matter that is not readily available or discussed in newspapers, television, magazines, radio, surfing the web, or online social media networks. Many questionnaires in this study have been used at universities all over the world with no reports of adverse effects on participants.

There are no right or wrong answers for any of the questions. We only ask that participants answer with their first response and that they answer truthfully if they choose to answer the question. Some people may feel uncomfortable answering sensitive questions about their personal habits and themselves. If a participant experiences distress from a question or does not wish to answer it, they may leave it blank. Following the completion of the study, if participants are still experiencing distress they may access a variety of resources on campus, including Student Health Services at Western University [REDACTED] or Psychological Services at Western University [REDACTED].

The writing tasks will require participants to think and write about their own personal experiences. It is possible that some people may experience distress recalling a potentially stressful event. The participant can choose any event that they are most comfortable writing about that is related to the question. If participants experience distress from a question or do not wish to answer it, they may leave it blank. In addition, we will provide participants with resources on campus and in the community that they can access after completing each writing task.

### **8. Possible Benefits**

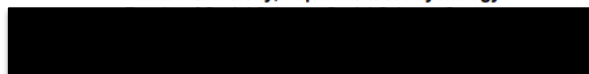
Participants may not directly benefit from participating in this study, but the knowledge gained from this study may help to better understand factors that can improve women's responses to stressful events that occur during university.

### **9. Compensation**

If the participant is a Psychology 1000 student, they will receive 1.0 research credit for attending the information session and participating in the first survey. By participating in the writing tasks over the next 5 days and completing the second survey, the participant will receive 1.5 research credits. By participating in the third and final survey, the participant will receive 0.5 research credits. Therefore, if the participant participates in

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all portions of the study, they will receive 3.0 SONA research credits.

In addition, if the participant complete all 5 of the writing tasks, they will be entered into a draw to receive a \$25.00 Starbucks gift card.

If the participant is a Non-Psych-1000 student, they will receive compensation based on information provided in your course outline. If the participant has any questions about the compensation, they should refer to their course outline or contact their course instructor.

### 10. Voluntary Participation

Participation in this study is voluntary, and the participant can decide not to participate at any time. If the participant decides to withdraw from participating, the data they have already completed will be retained and their partial course credit will not be affected.

If the participant wishes to withdraw their data for any reason, they may do so. However, the participant will need to provide us with their SONA ID number in order to remove their data, since this is how data from the surveys is linked to the writing tasks. If the participant wishes to withdraw their data, please contact the Principal Investigator or the MSc student named below.

During the study participants are free to leave any question blank that they do not wish not to answer, without penalty or loss of credit.

Participants do not waive any legal rights by consenting to this study. Withdrawing from this study will not have any impact on their academic standing.

### 11. Confidentiality

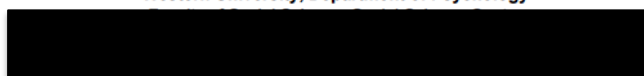
All responses to the surveys and writing tasks will remain confidential. All responses are coded with each participants' unique SONA ID number, and only Katarina Huellemann and Dr. Rachel Calogero will have access to the master list which contains the email addresses linked to the SONA IDs. The master list will be stored in a locked drawer in room [REDACTED]. Participant's responses will be used for research purposes only. In reports of this study, only aggregated group data will be presented, and only each participant's SONA ID will be on the data file. All electronic documents will be kept on a secure university network. The data will be kept for a period of 7 years in accordance with Western University policy. Representatives of The University of Western Ontario Non-Medical Research Ethics Board may require access to the participant's study-related records to monitor the conduct of the research.

### 12. Contacts for Further Information

If participants would like to receive any further information regarding this research or their participation in the study, they may contact Katarina Huellemann ([REDACTED]). Participant's may also contact the principal investigator of this

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Psychology

study, Rachel Calogero [REDACTED].

For any questions regarding the conduct of the study, or participant's rights as a research participant, please contact the Office of Research Ethics at Western University, [REDACTED].

### 13. Publication

If the results of the study are published, only aggregated data will be used that does not identify participant's personally. If participants would like to receive a copy of any potential study results, please contact Katarina Huellemann [REDACTED].

**You may print this form for your records.**

*I have read the Letter of Information, have had the nature of the study explained to me, and I agree to participate.*

I understand that by clicking 'I agree' below, I am indicating my consent to participate.

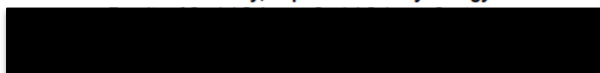
- ☐ I agree
- ☐ I do not agree to participate. I will exit the survey now

We will also need to obtain your consent to contact you via email for the remainder of the study:

- ☐ I agree to be contacted by email for the purposes of follow-up writing tasks, surveys, and compensation
- ☐ I do not agree to be contacted by email for the purposes of follow-up writing tasks, surveys, and compensation

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## Appendix F: Main Study and Covariate Measures

**Demographics**

What is your age? \_\_\_\_\_

What gender do you identify as:

- ☐ Woman (Cis-gender)
- ☐ Woman (Transgender)
- ☐ Man (Cis-gender)
- ☐ Man (Transgender)
- ☐ Non-binary
- ☐ Prefer not to say

How would you describe your education level?

- ☐ No formal education
- ☐ Primary level education
- ☐ Secondary level education
- ☐ College education (Bachelor's degree)
- ☐ Graduate education (Graduate degree)

Is English your primary language?

- ☐ Yes
- ☐ No

If you answered “No” to the last question, how would you rate your English proficiency?

- ☐ Fluent
- ☐ Moderate
- ☐ Basic

What is your religious affiliation?

- ☐ Christian
- ☐ Jewish
- ☐ Muslim
- ☐ Hindu
- ☐ Other \_\_\_\_\_
- ☐ None

How would you rate your own socioeconomic status?

I consider myself to be:

- ☐ Lower class
- ☐ Working class
- ☐ Lower middle class
- ☐ Middle class
- ☐ Upper middle class
- ☐ Upper class

In which country do you currently reside?

---

What is your country of origin?

---

How would you describe your ethnicity? Select all that apply.

- ☐ Aboriginal (North American Indian, Metis, Inuit)
- ☐ White
- ☐ Chinese
- ☐ Japanese
- ☐ Korean
- ☐ South Asian
- ☐ Southeast Asian (e.g., Vietnamese, Cambodian)
- ☐ Middle Eastern
- ☐ Black
- ☐ Filipino
- ☐ Latin American
- ☐ Other \_\_\_\_\_

**Body Shame Phenomenology Scale (PBSS)**

(Fredrickson et al., 1998)

5-point rating scale from 1 (*not at all*) to 5 (*extremely*)

Instructions: Please indicate how much you are experience each of the following feelings when thinking about looking at your body in a mirror.

1. I feel like covering my body.\*
2. I feel angry with myself.
3. I wish I were invisible.\*
4. I feel like cringing.\*
5. I feel like an attractive person.<sup>1</sup>
16. I feel embarrassed.\*
7. I feel disgusted with myself.
8. I wish I could disappear.
9. I feel like an ugly person.
10. I feel ashamed.
11. I wish I were smaller.\*
12. I feel awkward.
13. I feel like hiding.\*
14. I feel silly.\*
15. I feel like a bad person.\*
16. I feel like crawling into a corner.



17. I feel exposed.\*

**\*Items used for 9-item version of PBSS.**

**<sup>1</sup>Reverse coded.**

**Higher scores reflect greater body shame.**

**Fears of Compassion Scales. Scale 3: Expressing kindness and compassion towards  
yourself (FSC)**

(Gilbert et al., 2011)

5-point rating scale from 1 (*don't agree at all*) to 5 (*completely agree*)

Instructions: People may be more critical towards themselves or they may be more compassionate towards themselves in a variety of situations. Below are a series of statements that we would like you to think carefully about and then rate the extent that you agree to each statement.

1. I feel that I don't deserve to be kind and forgiving to myself.
2. If I really think about being kind and gentle with myself it makes me sad.
3. Getting on in life is about being tough rather than compassionate.
4. I would rather not know what being 'kind and compassionate to myself' feels like.
5. When I try and feel kind and warm to myself I just feel kind of empty.
6. I fear that if I start to feel compassion and warmth for myself, I will feel overcome with a sense of loss/grief.
7. I fear that if I become kinder and less self-critical to myself then my standards will drop.
8. I fear that if I am more self-compassionate, I will become a weak person.

9. I have never felt compassion for myself, so I would not know where to begin to develop these feelings.

10. I worry that if I start to develop compassion for myself I will become dependent on it.

11. I fear that if I become too compassionate to myself I will lost my self-criticism and my flaws will show.

12. I fear that if I develop compassion for myself, I will become someone I do not want to be.

13. I fear that if I become too compassionate to myself others will reject me.

14. I find it easier to be critical towards myself rather than compassionate.

15. I fear that if I am too compassionate towards myself, bad things will happen.

**Higher scores indicate higher fear of self-compassion.**

**Self-Objectification Beliefs and Behaviors Scale (SOBBS)**

(Lindner & Tantleff-Dunn, 2017)

5-point rating scale from 1 (*strongly disagree*) to 5 (*strongly agree*)

Instructions: People may have a variety of thoughts and feelings about their bodies. Please base your ratings on how much you agree or disagree with the following statements when thinking about your body during university thus far.

1. Looking attractive to others is more important to me than being happy with who I am inside.<sup>2</sup>
2. I try to imagine what my body looks like to others (i.e., like I am looking at myself from the outside).<sup>1</sup>
3. How I look is more important to me than how I think or feel.<sup>2</sup>
4. I choose specific clothing or accessories based on how they make my body appear to others.<sup>1</sup>
5. My physical appearance is more important than my personality.<sup>2</sup>
6. When I look in the mirror, I notice areas of my appearance that I think others will view critically.<sup>1</sup>
7. I consider how my body will look to others in the clothing I am wearing.<sup>1</sup>
8. I often think about how my body must look to others.<sup>1</sup>
9. My physical appearance says more about who I am than my intellect.<sup>2</sup>
10. How sexually attractive others find me says something about who I am as a person.<sup>2</sup>
11. My physical appearance is more important than my physical abilities.<sup>2</sup>
12. I try to anticipate others' reactions to my physical appearance.<sup>1</sup>

13. My body is what gives me value to other people.<sup>2</sup>

14. I have thoughts about how my body looks to others even when I am alone.<sup>1</sup>

<sup>1</sup>Represents Factor 1 - Internalizing an observer's perspective of the body.

<sup>2</sup>Represents Factor 2 - Treating the body as if it were capable of representing the self.

Higher scores reflect greater self-objectification.

**Self-Compassion Scale (SCS)**

(Neff, 2003)

5-point rating scale from 1 (*almost never*) to 5 (*almost always*)

Instructions: Please read each statement carefully before answering. Indicate how often you behave in the stated manner, using the following scale:

1. I'm disapproving and judgmental about my own flaws and inadequacies.
2. When I'm feeling down I tend to obsess and fixate on everything that's wrong.
3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.
4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.
5. I try to be loving towards myself when I'm feeling emotional pain.
6. When I fail at something important to me I become consumed by feelings of inadequacy.
7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.
8. When times are really difficult, I tend to be tough on myself.
9. When something upsets me I try to keep my emotions in balance.

10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
11. I'm intolerant and impatient towards aspects of my personality I don't like.
12. When I'm going through a very hard time, I give myself the caring and tenderness I need.
13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.
14. When something painful happens I try to take a balanced view of the situation.
15. I try to see my failings as part of the human condition.
16. When I see aspects of myself that I don't like, I get down on myself.
17. When I fail at something important to me I try to keep things in perspective.
18. When I'm really struggling, I tend to feel like other people must be having an easier time of it.
19. I'm kind to myself when I'm experiencing suffering.
20. When something upsets me I get carried away with my feelings.
21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.
22. When I'm feeling down I try to approach my feelings with curiosity and openness.
23. I'm tolerant of my own flaws and inadequacies.
24. When something painful happens I tend to blow the incident out of proportion.

25. When I fail at something important to me, I tend to feel alone in my failure.

26. I try to be understanding and patient towards aspects of my personality I don't like.

**Coding Key:**

**Self-Kindness Items: 5, 12, 19, 23, 26**

**Self-Judgment Items: 1, 8, 11, 16, 21**

**Common Humanity Items: 3, 7, 10, 15**

**Isolation Items: 4, 13, 18, 25**

**Mindfulness Items: 9, 14, 17, 22**

**Over-identified Items: 2, 6, 20, 24**



**Body Appreciation Scale-2 (BAS-2)**

(Tylka & Wood-Barcalow, 2015)

5-point scale from 1 (*never*) to 5 (*always*)

Instructions: Please indicate whether the question is true about you never, seldom, sometimes, often, or always.

1. I respect my body.
2. I feel good about my body.
3. I feel that my body has at least some good qualities.
4. I take a positive attitude towards my body.
5. I am attentive to my body's needs.
6. I feel love for my body.
7. I appreciate the different and unique characteristics of my body.
8. My behavior reveals my positive attitude toward my body; for example, I hold my head high and smile.
9. I am comfortable in my body.
10. I feel like I am beautiful even if I am different from media images of attractive people (e.g., models, actresses/actors).

**Higher scores indicate greater body appreciation.**

**Broad Conceptualization of Beauty Scale (BCBS)**

(Tylka & Iannantuono, 2016)

7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*)

Instructions: How do YOU define women's beauty? Please indicate the extent to which you agree with each statement. We are only interested in YOUR beliefs, which may or may not be reflected by others or society.

1. Even if a physical feature is not considered attractive by others or by society, I think that it can be beautiful.
2. A woman's confidence level can change my perception of her physical beauty.
3. I think that a wide variety of body shapes are beautiful for women.
4. I think that thin women are more beautiful than women who have other body types.\*
5. A woman's soul or inner spirit can change my perception of her physical beauty.
6. I define a woman's beauty differently than how it is portrayed in the media.
7. A woman's acceptance of herself can change my perception of her physical beauty.
8. I appreciate a wide range of different looks as beautiful.
9. I think that women of all body sizes can be beautiful.

\*Reverse score.

**Scoring Procedure:** Reverse score Item 4, and then average participants' responses to Items 1-9.

**Weight Bias Internalization Scale Two-Factor (WBIS-2F)**

(Meadows & Higgs, 2019)

7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*)

Instructions: Each of the statements below refer to your perceptions of your weight. Please indicate to what extent you agree or disagree with each of the statements using the scales provided.

Please be assured that your answers will remain anonymous and confidential. There are no right or wrong answers.

1. I feel anxious about being overweight because of what people might think of me.
2. I wish I could drastically change my weight.
3. Whenever I think a lot about being overweight, I feel depressed.
4. I hate myself for being overweight.
5. My weight is a major way that I judge my value as a person.
6. Because I am overweight, I do not feel like my true self.
7. Because of my weight, I do not understand why anyone attractive would want to date me.
8. As an overweight person, I feel that I am just as competent as anyone.\*

9. I feel that being overweight does not interfere with my ability to be a good and decent person.\*
10. I do not feel that I deserve to have a really fulfilling social life as long as I am overweight.
11. As an overweight person, I feel that I am just as deserving as respect as anyone.\*
12. I feel that being an overweight person does not make me unworthy of a loving relationship.\*
13. If other people do not treat me with respect, I should put up with it because of my weight.

**\*Reverse scored**

**Coding Key:**

**Weight-related distress: Items 1-7**

**Weight-related self-worth: Items 8-13**

**Eating Attitudes Test (EAT-26)**

(Garner et al., 1989)

5-point scale from 1 (*never*) to 5 (*always*)

Instructions: Please fill out the scale below as accurately, honestly, and completely as possible.

There are no right or wrong answers. All your responses are confidential.

1. I am terrified about being overweight.
2. I avoid eating when I am hungry.
3. I find myself preoccupied with food.
4. I have gone on eating binges where I feel that I may not be able to stop.
5. I cut my food into small pieces.
6. I am aware of the calorie content of the foods I eat.
7. I particularly avoid food with a high carbohydrate content (i.e., bread, rice, potatoes, etc.).
8. I feel that others would prefer if I ate more.
9. I vomit after I have eaten.
10. I feel extremely guilty after eating.
11. I am preoccupied with a desire to be thinner.
12. I think about burning up calories when I exercise.
13. Other people think I am too thin.
14. I am preoccupied with the thought of having fat on my body.
15. I take longer than others to eat my meals.

16. I avoid foods with sugar in them.
17. I eat diet foods.
18. I feel that food controls my life.
19. I display self-control around food.
20. I feel that others pressure me to eat.
21. I give too much time and thought to food.
22. I feel uncomfortable after eating sweets.
23. I engage in dieting behaviour.
24. I like my stomach to be empty.
25. I have the impulse to vomit after meals.
26. I enjoy trying new rich foods\*

**Coding Key:**

**Recode items 1-25 to “always” = 3, “usually” = 2, “often” = 1, “sometimes” = 0, “rarely” = 0, and “never” = 0**

**Recode item 26 to “always” = 0, “usually” = 0, “often” = 0, “sometimes” = 1, “rarely” = 2, and “never” = 3**

**Add up total scores. Scores greater than 20 signify a high level of concern about dieting, weight, or problematic eating behaviours, and the individual should seek clinical evaluation to determine whether a diagnosis of an eating disorder is necessary.**

**Rosenberg Self-Esteem Scale (SES)**

(Rosenberg, 1965)

4-point scale from 1 (*strongly disagree*) to 4 (*strongly agree*)

Instructions: Below is a list of statements dealing with your general feelings about yourself.

Please indicate how strongly you agree or disagree with each statement.

1. On the whole, I am satisfied with myself.
2. At times I think I am no good at all.\*
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.\*
6. I certainly feel useless at times.\*
7. I feel that I am a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself.\*
9. All in all, I am inclined to feel that I am a failure.\*
10. I take a positive attitude toward myself.

**\*Reverse scored.**

**Higher scores reflect greater self-esteem.**

## Appendix G: Debriefing Form



Psychology

**Debriefing****Daily Writing and Stress in University Women**

Thank you for participating!

This form will explain to you in more detail the purpose of this study and aspects of the study that were not explained to you before the study began. At the beginning of the study, we told you we were interested in investigating the relationship between writing daily and university-related stress and psychological outcomes in university women. In actuality, the purpose of this study was to test an experimental manipulation of writing in a *self-compassionate* manner for five days about a negative body image experience on university women's negative (e.g., self-objectification, body shame, internalized weight stigma) and positive body image (e.g., body appreciation, broad conceptualization of beauty), disordered eating, self-compassion, and fear of self-compassion compared to an attentional-control condition and a wait-list control condition. Therefore, for the purposes of this study, you were randomly assigned to one of the three conditions: self-compassionate writing, attentional-control writing, or a wait-list control group. This study is contributing to the development of more tailored interventions that focus on cultivating self-compassion to buffer against negative body image in college women.

If participating in this study has caused you any distress or discomfort, please be aware that the researchers of this study are available to answer questions and discuss the purpose of the research further. Additionally, there are resources for counseling and support services on campus through Student Health Services (Phone: [REDACTED]) or Psychological Services at Western (Phone: [REDACTED]). There are also several resources available in the community for information and help with eating disorders through the National Eating Disorder Information Centre (NEDIC) helpline (Phone Toll Free: [REDACTED]) and the Canadian Mental Health Association's *Reach Out* hotline ([REDACTED] or [REDACTED]).

Finally, ***we ask that you not talk about this study with others*** to ensure that prospective participants do not receive information that may influence their responses and the overall results.

We are here to answer any questions you may have about the study. Please feel free to contact:

Rachel Calogero, Ph.D.  
Principal Investigator  
Email: r[REDACTED]  
Phone: [REDACTED]

Version date: 22 August 2019

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Western University, Department of Psychology





## Appendix H: Tables of Descriptive Statistics for Main Study and Covariate Measures

**Table 4***Descriptive Statistics and Bivariate Correlations for Main Study and Covariate Measures at T1 – Baseline*

Measure	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. SCS	2.85	0.51											
2. FSC	2.32	0.87	-.60**										
3. PBSS	2.04	0.90	-.52**	.59**									
4. Self-objectification – ‘Internalized observer’	3.76	0.88	-.49**	.39**	.50**								
5. Self-objectification – ‘Body as representing the self’	2.12	0.78	-.41**	.51**	.45**	.50**							
6. BAS-2	3.49	0.72	.63**	-.60**	-.64**	-.52**	-.45**						
7. BCB	5.89	0.71	.16*	-.20*	-.15*	-.19**	-.39**	.27**					
8. WBIS-2F	2.76	1.12	-.49**	.59**	.68**	.50**	.57**	-.70**	-.32**				
9. SES	2.78	0.50	.72**	-.62**	-.60**	-.40**	-.41**	.66**	.14*	-.54**			
10. EAT-26	10.06	9.37	-.34**	.46**	.45**	.36**	.37**	-.50**	-.16*	.58**	-.31**		
11. Age	18.07	0.68	-.04	.00	.04	-.11	-.01	.11	.17*	-.06	.06	-.08	
12. Attend with Friend	-	-	-.03	.13	.08	-.02	.05	.01	.02	.05	-.05	.01	.00

*Note.*  $N = 202$ . \*\* $p < .01$ . \* $p < .05$ . SCS = Self-Compassion Scale. FSC = Fear of Self-Compassion Scale. PBSS = Phenomenological Body Shame Scale. BAS-2 = Body Appreciation Scale-2. BCB = Broad Conceptualization of Beauty Scale. WBIS-2F = Two-Factor Weight Bias Internalization Scale. SES = Self-Esteem Scale. EAT-26 = Eating Attitudes Test-26.

**Table 5***Descriptive Statistics and Bivariate Correlations for Main Study and Covariate Measures at Time 2 – Post-Intervention*

Measure	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. SCS	2.85	0.51											
2. FSC	2.32	0.87	-.60**										
3. PBSS	2.04	0.90	-.52**	.59**									
4. Self-objectification – ‘Internalized observer’	3.76	0.88	-.49**	.39**	.50**								
5. Self-objectification – ‘Body as representing the self’	2.12	0.78	-.41**	.51**	.45**	.50**							
6. BAS-2	3.49	0.72	.63**	-.60**	-.64**	-.52**	-.45**						
7. BCB	5.89	0.71	.16*	-.20*	-.15*	-.19**	-.39**	.27**					
8. WBIS-2F	2.76	1.12	-.49**	.59**	.68**	.50**	.57**	-.70**	-.32**				
9. SES	2.78	0.50	.72**	-.62**	-.60**	-.40**	-.41**	.66**	.14*	-.54**			
10. EAT-26	10.06	9.37	-.34**	.46**	.45**	.36**	.37**	-.50**	-.16*	.58**	-.31**		
11. Age	18.07	0.68	-.04	.00	.04	-.11	-.01	.11	.17*	-.06	.06	-.08	
12. Attend with Friend	-	-	-.02	.13	.12	.01	.07	.01	.03	.05	-.05	.01	.01

*Note.*  $N = 202$ . \*\* $p < .01$ . \* $p < .05$ . SCS = Self-Compassion Scale. FSC = Fear of Self-Compassion Scale. PBSS = Phenomenological Body Shame Scale. BAS-2 = Body Appreciation Scale-2. BCB = Broad Conceptualization of Beauty Scale. WBIS-2F = Two-Factor Weight Bias Internalization Scale. SES = Self-Esteem Scale. EAT-26 = Eating Attitudes Test-26.

**Table 6***Descriptive Statistics and Bivariate Correlations for Main Study and Covariate Measures at Time 3 – One-Month Follow-Up*

Measure	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. SCS	2.91	0.59											
2. FSC	2.33	0.91	-.60**										
3. PBSS	2.07	0.90	-.51**	.61**									
4. Self-objectification – ‘Internalized observer’	3.69	0.90	-.57**	.40**	.39**								
5. Self-objectification – ‘Body as representing the self’	2.05	0.83	-.38**	.57**	.49**	.50**							
6. BAS-2	3.51	0.72	.62**	-	-.70**	-.52**	-.48**						
7. BCB	5.88	0.76	.14	.60**	-.12	-.19**	-.36**	.28**					
8. WBIS-2F	2.76	1.12	-.44**	.53**	.67**	.50**	.58**	-.63**	-.24**				
9. SES	2.78	0.50	.65**	-	-.59**	-.40**	-.34**	.63**	.11	-.54**			
10. EAT-26	10.06	9.37	-.33**	.55**	.47**	.36**	.47**	-.45**	-.17*	.58**	-.31**		
11. Age	18.07	0.68	-.06	.45**	-.07	.01	-.11	.00	.14*	.09	-.06	.06	-.08
12. Attend with Friend	-	-	-.14	.13	.09	.01	.16*	.01	-.01	.05	-.05	.01	.01
13. Continued Writing Engagement	1.76	1.12	-.06	.16*	.21*	.12	.19*	-.08	.02	.21**	-.19**	.28**	.09

*Note.*  $N = 202$ . \*\* $p < .01$ . \* $p < .05$ . SCS = Self-Compassion Scale. FSC = Fear of Self-Compassion Scale. PBSS = Phenomenological Body Shame Scale. BAS-2 = Body Appreciation Scale-2. BCB = Broad Conceptualization of Beauty Scale. WBIS-2F = Two-Factor Weight Bias Internalization Scale. SES = Self-Esteem Scale. EAT-26 = Eating Attitudes Test-26.

**Table 14***Intercorrelations Between Each of the Three Timepoints and the Covariates for the Self-Compassion Condition*

Dependent variable	T1	T2	T3	Age (T1)	IWS (T1)	SES (T1)	EAT-26 (T1)
Self-compassion							
SCS T1				-.14	-.56	.76	-.31
SCS T2	.81			-.18	-.54	.70	-.30
SCS T3	.76	.82		-.29	-.44	.63	-.20
Fear of self-compassion							
FSC T1				.23	.51	-.57	.46
FSC T2	.83			.25	.50	-.53	.55
FSC T3	.79	.85		.29	.47	-.41	.45
Self-objectification – ‘Internalized observer’							
SOBBS-F1 T1				.23	.52	-.41	.34
SOBBS-F1 T2	.84			.21	.42	-.39	.37
SOBBS-F1 T3	.78	.85		.27	.36	-.27	.33
Self-objectification – ‘Body as representing the self’							
SOBBS-F2 T1				.19	.59	-.40	.26
SOBBS-F2 T2	.74			.20	.48	-.41	.34
SOBBS-F2 T3	.77	.78		.11	.63	-.37	.50
Body shame							
PBSS T1				.21	.69	-.49	.56
PBSS T2	.86			.27	.64	-.48	.63
PBSS T3	.82	.85		.19	.68	-.51	.57
Body appreciation							
BAS-2 T1				-.06	-.67	.63	-.50
BAS-2 T2	.80			-.11	-.63	.71	-.49
BAS-2 T3	.79	.83		-.05	-.56	.60	-.44
Broad conceptualization of beauty							
BCB T1				.12	-.15	.04	.02
BCB T2	.82			.20	-.16	.10	-.01
BCB T3	.65	.78		.08	-.06	-.02	-.05

*Note.* T1 = Time 1; T2 = Time 2; T3 = Time 3. SCS = Self-compassion Scale; FSC = Fear of Self-compassion Scale; SOBBS-F1 = ‘internalized observer’ subscale of the Self-Objectification Beliefs and Behaviors Scale (SOBBS); SOBBS-F2 = ‘body as representing the self’ subscale of the SOBBS. PBSS = Phenomenological Body Shame Scale; BAS-2 = Body Appreciation Scale-2; BCB = Broad Conceptualization of Beauty Scale.

**Table 15***Intercorrelations Between Each of the Three Timepoints and the Covariates for the Attentional-Control Condition*

Dependent variable	T1	T2	T3	Age (T1)	IWS (T1)	SES (T1)	EAT-26 (T1)
Self-compassion							
SCS T1				.02	-.55	.73	-.47
SCS T2	.88			.04	-.52	.73	-.44
SCS T3	.89	.91		.03	-.59	.72	-.52
Fear of self-compassion							
FSC T1				-.14	.68	-.68	.55
FSC T2	.86			-.18	.66	-.71	.61
FSC T3	.87	.90		-.17	.67	-.72	.60
Self-objectification – ‘Internalized observer’							
SOBBS-F1 T1				-.44	.53	-.36	.37
SOBBS-F1 T2	.81			-.18	.57	-.40	.36
SOBBS-F1 T3	.78	.83		-.22	.55	-.40	.47
Self-objectification – ‘Body as representing the self’							
SOBBS-F2 T1				-.19	.62	-.45	.49
SOBBS-F2 T2	.80			-.11	.56	-.26	.42
SOBBS-F2 T3	.81	.84		-.09	.65	-.39	.50
Body shame							
PBSS T1				-.15	.75	-.68	.53
PBSS T2	.90			-.26	.76	-.67	.54
PBSS T3	.86	.87		-.14	.74	-.64	.57
Body appreciation							
BAS-2 T1				.25	-.79	.70	-.60
BAS-2 T2	.91			.23	-.76	.69	-.60
BAS-2 T3	.89	.87		.30	-.76	.67	-.57
Broad conceptualization of beauty							
BCB T1				.29	-.52	.22	-.45
BCB T2	.63			.13	-.39	.13	-.37
BCB T3	.70	.73		.11	-.45	.22	-.40

*Note.* T1 = Time 1; T2 = Time 2; T3 = Time 3. SCS = Self-compassion Scale; FSC = Fear of Self-compassion Scale; SOBBS-F1 = ‘internalized observer’ subscale of the Self-Objectification Beliefs and Behaviors Scale (SOBBS); SOBBS-F2 = ‘body as representing the self’ subscale of the SOBBS. PBSS = Phenomenological Body Shame Scale; BAS-2 = Body Appreciation Scale-2; BCB = Broad Conceptualization of Beauty Scale.

**Table 16***Intercorrelations Between Each of the Three Timepoints and the Covariates for the Wait-list Control Condition*

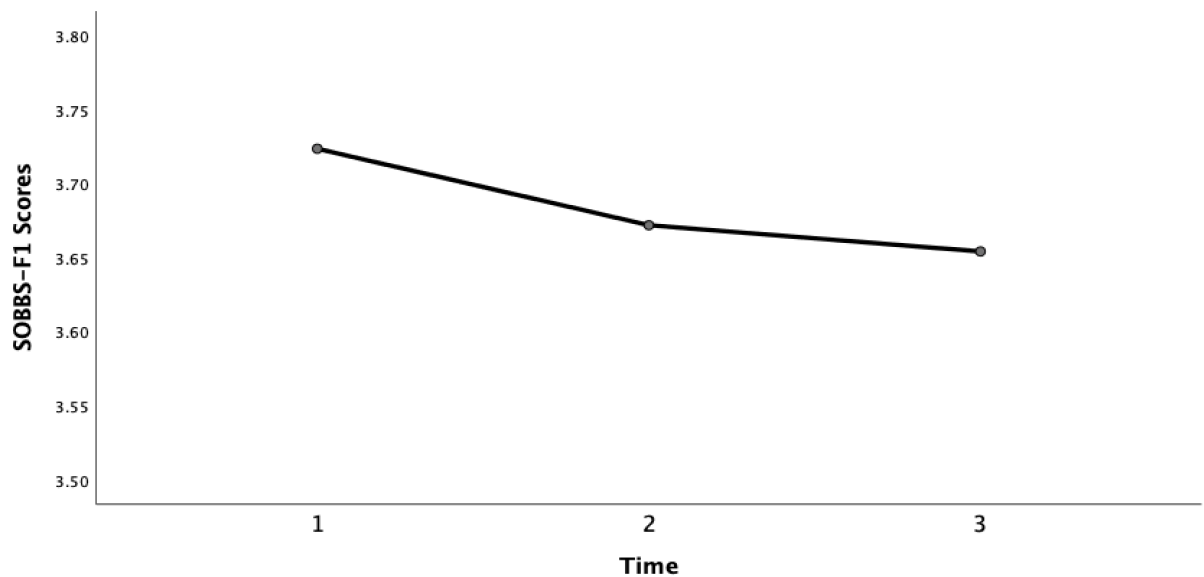
Dependent variable	T1	T2	T3	Age (T1)	IWS (T1)	SES (T1)	EAT-26 (T1)
Self-compassion							
SCS T1				.12	-.26	.62	-.14
SCS T2	.80			.11	-.25	.54	-.22
SCS T3	.67	.75		.36	-.22	.55	-.21
Fear of self-compassion							
FSC T1				-.24	.55	-.58	.32
FSC T2	.84			-.38	.51	-.40	.42
FSC T3	.70	.66		-.31	.49	-.41	.32
Self-objectification – ‘Internalized observer’							
SOBBS-F1 T1				-.14	.40	-.41	.36
SOBBS-F1 T2	.73			-.11	.28	-.23	.37
SOBBS-F1 T3	.62	.78		-.05	.17	-.23	.26
Self-objectification – ‘Body as representing the self’							
SOBBS-F2 T1				-.17	.46	-.37	.34
SOBBS-F2 T2	.68			-.21	.48	-.37	.36
SOBBS-F2 T3	.41	.66		-.21	.37	-.15	.33
Body shame							
PBSS T1				.01	.52	-.61	.15
PBSS T2	.78			.08	.53	-.59	.09
PBSS T3	.76	.80		-.06	.53	-.62	.18
Body appreciation							
BAS-2 T1				.21	-.58	.62	-.31
BAS-2 T2	.85			.15	-.59	.65	-.32
BAS-2 T3	.72	.74		.20	-.44	.60	-.22
Broad conceptualization of beauty							
BCB T1				.07	-.37	.17	-.04
BCB T2	.59			.07	-.29	.13	-.01
BCB T3	.48	.80		.10	-.25	.12	-.04

*Note.* T1 = Time 1; T2 = Time 2; T3 = Time 3. SCS = Self-compassion Scale; FSC = Fear of Self-compassion Scale; SOBBS-F1 = ‘internalized observer’ subscale of the Self-Objectification Beliefs and Behaviors Scale (SOBBS); SOBBS-F2 = ‘body as representing the self’ subscale of the SOBBS. PBSS = Phenomenological Body Shame Scale; BAS-2 = Body Appreciation Scale-2; BCB = Broad Conceptualization of Beauty Scale.

## Appendix I: Supplementary Figures

**Figure 2**

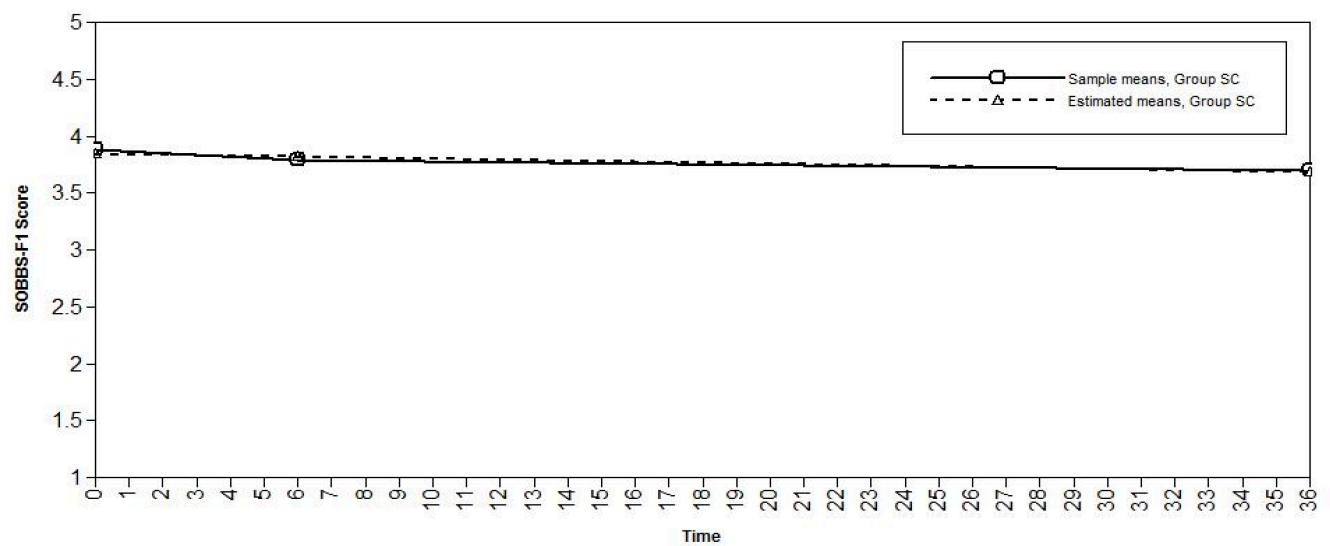
*Main Effect of Time on Self-Objectification – ‘Internalized Observer’ Dimension*



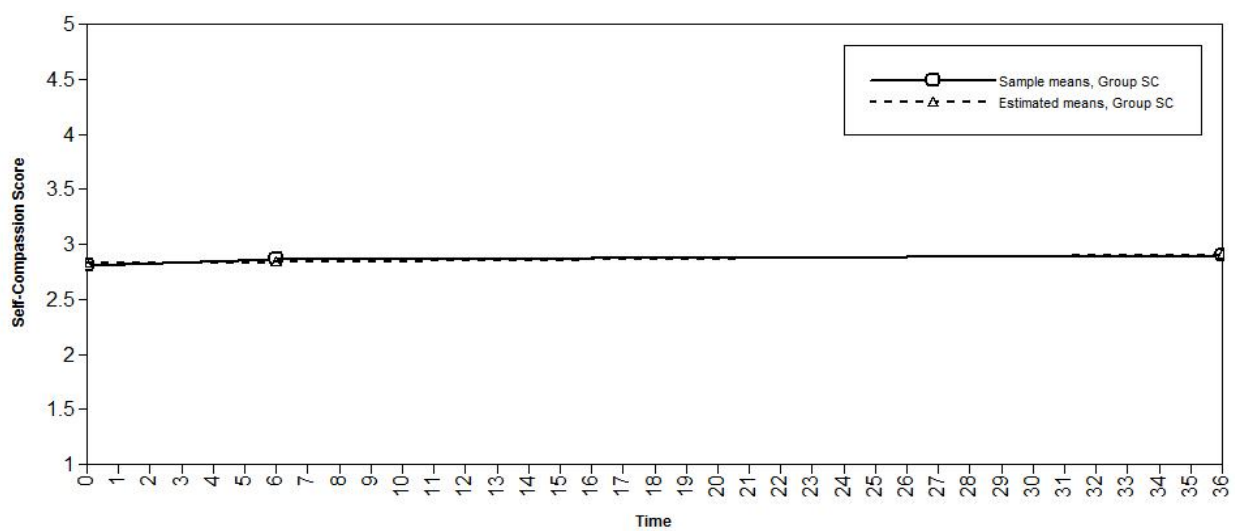
*Note.* Self-objectification – ‘internalized observer’ scores were measured on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The y-axis has been adjusted for visualization purposes.

**Figure 3**

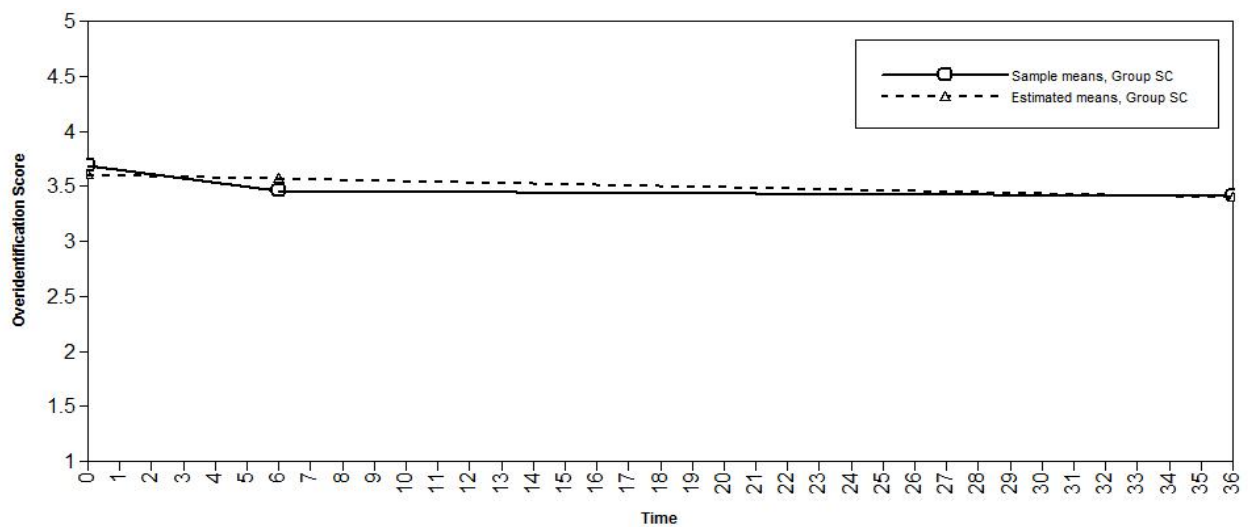
*Linear Slope for Self-Objectification – ‘Internalized Observer’ in the Self-Compassion Condition*

**Figure 4**

*Linear Slope for Self-Compassion in the Self-Compassion Condition*





**Figure 5***Linear Slope for Overidentification in Self-Compassion Condition***Figure 6***Linear Slope in Isolation for Attentional-Control Condition*